

**REMARKS**

This is a full and timely response to the outstanding non-final Office Action mailed February 6, 2008 (Paper No. 20080131). Upon entry of this response, claims 1-29 are pending in the application. Applicants respectfully request reconsideration and allowance of all pending claims.

**I. Claim Rejections under 35 U.S.C. §103(a)**

Claims 1-29 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over *Raleigh et al.* (U.S. Patent No. 6,463,096, hereafter "*Raleigh*") in view of *Matsuoka et al.* (U.S. Patent Application Pub. No. 2002/0009082, hereafter "*Matsuoka*"). Applicants respectfully traverse this rejection as applied to pending claims 1-29.

The U.S. Patent and Trademark Office ("USPTO") has the burden under section 103 to establish a *prima facie* case of obviousness according to the factual inquiries expressed in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966). The four factual inquiries, which are also expressed in MPEP § 2141, are as follows:

- (A) Determining the scope and contents of the prior art;
- (B) Ascertaining the differences between the prior art and the claims in issue;
- (C) Resolving the level of ordinary skill in the pertinent art; and
- (D) Evaluating evidence of secondary considerations.

Applicants respectfully submit that a *prima facie* case of obviousness is not established using the art of record.

**A. Initial Matter**

The Office Action alleges that *Raleigh* discloses "receiving a first portion (see figure 4a, CPE) of said first frame( see figure 4a, Frame A, B, C, D or E) wherein the length of said first portion is less than said frame length and is based on said first transmission rate(2Mbps)( see

column 6, lines 42-44 a frame is here is [sic] understood to be a unit of time for which access to the common transmission medium may be assigned to one or more CPEs..." (Office Action, page 3). Thus, the Office Action appears to allege that "receiving a first portion of **said first frame** wherein the length of said first portion is less than said frame length" corresponds to receiving a first portion of "**a unit of time.**"

In contrast, the Office Action also alleges that *Raleigh* discloses "queuing said first portion of said first frame( see column 6, lines 28-30, processor receives packets from the IP router that are to [sic] directed to the hub and queues them..." (Office Action, page 3). The Office Action subsequently acknowledges that "Raleigh et al. fails to specifically state queuing a portion of the frame" (Office Action, page 19) and then alleges that "Matsuoka et al. teaches queuing said first portion of said first frame (see [0015], lines 1-6, buffer unit for fragmenting variable-length packets into fixed length packets, storing (queuing) the fixed-length packets (portions of variable-length packets))" (Office Action, page 4). Thus, the Office Action appears to allege that "**said first frame**" corresponds to "**packets.**"

Applicants submit that **packets** are not **units of time**. Under the Examiner's analysis, each limitation of Applicants' claims is being considered independent of the other limitations. Such an approach is improper given that it treats Applicants' claims in a piecemeal fashion such that each limitation is evaluated in a vacuum. As is well established in the law, the Examiner must instead consider the claims as a whole. *Hartness International, Inc. v. Simplicatic Engineering Co.*, 819 F.2d 1100, 2 USPQ2d 1826 (Fed. Cir. 1987) (In determining obviousness, "the inquiry is not whether each element existed in the prior art, but whether the prior art made obvious the invention as a whole for which patentability is claimed"). When Applicants' claims are considered as a whole, it becomes clear that *Raleigh* in view of *Matsuoka* does not teach what the Examiner alleges.

Moreover, the Office Action alleges "it would have been obvious to one with ordinary skill in the art at the time the invention was made to combine Raleigh et al. invention with Matsouka et al.

invention because Matsouka et al. invention is a buffer unit and switching apparatus avoids **frame** interleaving and minimize the required amount of hardware" (Office Action, page 4, emphasis added). However, *Matsuoka* specifically teaches "**a variable-length packet will be referred to as a "frame"**", in order to clearly distinguish the variable-length packet from a fixed-length packet" (paragraph 9). In contrast, *Raleigh* specifically teaches "**A frame is here understood to be a unit of time** for which access to the common transmission medium may be assigned to one or more CPEs" (col. 6, lines 41-44). Applicants submit that **a packet is not a unit of time**. "If the proposed modification or combination of the prior art would change the principle of operation of the prior art invention being modified, then the teachings of the references are not sufficient to render the claims *prima facie* obvious. *In re Ratti*, 270 F.2d 810, 123 USPQ 349 (CCPA 1959)" (MPEP § 2143.01).

Therefore, for at least the reasons described above, Applicants respectfully submit that the Office Action fails to establish a *prima facie* case of obviousness and request that the rejections of claims 1-29 be withdrawn.

## B. Independent Claim 1

Applicants' claim 1 provides as follows (emphasis added):

A method comprising:

**storing a description of a first frame** wherein said description comprises:

- (1) a frame length; and
- (2) a first transmission rate;

**receiving a first portion of said first frame, said first portion having a first length less than said frame length**, said first length based on said first transmission rate;

**queuing said first portion of said first frame;**

**transmitting said first portion of said first frame** at said first transmission rate into a shared-communications channel; and

**receiving a second portion of said first frame after said transmission of said first portion has started.**

Applicants respectfully request that the rejection of independent claim 1 be withdrawn for at least the reason that *Raleigh* in view of *Matsuoka* fails to disclose, teach, or suggest at least the features recited and emphasized above in claim 1.

**1. Storing a description of a first frame**

The Office Action alleges “*Raleigh et al.* discloses ... storing a description of a first frame” (Office Action, page 2). Specifically, the Office Action alleges that “MAP instructions are forwarded to a radio link supervisor processor, which reads on storing a description (instructions), the processor has a copy of the instruction to process, frequencies data rates, and frame times” [sic] (Office Action, page 2). Applicants respectfully submit that “instructions assigning transmission center-frequencies, data rates and frame times” (col. 6, lines 15-16) are not “a description of a first frame” as recited in claim 1.

Furthermore, Applicants respectfully submit that forwarding instructions is not “storing a description” as recited in claim 1. Even though *Raleigh* teaches:

Much of the data extracted from the received MAC packets is in the form of IP packets which are forwarded to IP router 308. Some of the extracted data includes the MAP which carries instructions assigning transmission center-frequencies, data rates and frame times. These instructions are forwarded to a radio link supervision processor 320. Radio link supervision processor 320 controls the data rate, transmission times and center-frequencies of operation for baseband physical layer processor 316 and radio converter 314.

(*Raleigh*, col. 6, lines 12-21), *Raleigh* does not teach storing “instructions” as alleged. Thus, *Raleigh* does not teach or suggest “storing a description of a first frame” as recited in claim 1.

The addition of *Matsuoka* does not overcome these deficiencies. While *Matsuoka* teaches that a “header extracting section reads the destination information, the flag indicating the start or end of the frame, and the flag indicating multicasting or unicasting, from the packet header of the supplied packets” (paragraph 43), *Matsuoka* does not teach or suggest that the information is stored. Thus, *Raleigh* in view of *Matsuoka* fails to disclose or suggest “storing a description of a first frame” as recited in claim 1.

**2. Receiving a first portion of said first frame ...**

The Office Action cites *Raleigh*'s teaching of "**a frame is here** is [sic] **understood to be a unit of time** for which access to the common transmission medium may be assigned to one or more CPEs" (Office Action, page 3, emphasis added). Thus, the Office Action appears to allege that "receiving a first portion of said first frame wherein the length of said first portion is less than said frame length" corresponds to receiving a first portion of "**a unit of time.**"

The Office Action further alleges "see figure 4a, Frame A is divided into 15 parts each part is less than the total frame length, frame A makes up the sum of all 15 portions" (Office Action, page 3). However, *Raleigh* teaches that:

a bandwidth management processor 210 allocates available upstream bandwidth among CPEs 104. ... One consideration in assigning center-frequency is channel quality available at different center-frequencies... The bandwidth management processor 210 forwards assignments of frequency, data rate, and transmission frame... These assignments of center-frequency, data rate, and transmission frame provide the CPEs the information regarding the time-frequency division of the upstream medium. This information is referred to as the MAP.

According to the present invention, the spectrum available for downstream communications is divisible in both the frequency and time domains. FIG. 4A shows a series of frames in the time domain. A frame is here understood to be a unit of time for which access to the common transmission medium may be assigned to one or more CPEs 104. ...

In the illustrated example, each CPE 104 may transmit upstream during a given frame... In an A frame 404, 15 CPEs 1-15 are scheduled to transmit, each transmitting at 2 Mbps at differing center-frequencies. ... In a C frame 408, the entire upstream spectrum is reserved for a single CPE 3 which transmits at 30 Mbps. ... Thus, many CPEs may simultaneously transmit as low data rate sources or one CPE may transmit at a high data rate. ... Assigning frames such as in FIG. 4A is done by bandwidth management processor 210.

(*Raleigh*, col. 5, lines 28-42, col. 6, line 36-44 and col. 6, line 58 through col. 7, line 13, emphasis added).

Thus, *Raleigh* teaches simultaneous transmission by CPEs at different center-frequencies during a frame. *Raleigh* does not disclose assigning different **time portions** of a frame to CPEs. Even assuming, *arguendo*, that a portion of the frequency domain assigned to

a CPE corresponds to a portion of a frame, *Raleigh* does not teach that the portion of the frequency domain has a **time length** "less than said frame length." Nor does *Raleigh* disclose receiving portions of a **"unit of time."**

The addition of *Matsuoka* does not overcome this deficiency. *Matsuoka* does not teach or suggest receiving a portion of a **"unit of time."** Therefore, *Raleigh* in view of *Matsuoka* does not teach or suggest "receiving a first portion of said first frame, said first portion having a first length less than said frame length" as recited in claim 1.

### 3. ***Queuing said first portion of said first frame***

Even though the Office Action acknowledges "*Raleigh* et al. fails to specifically state queuing a portion of the frame" (Office Action, page 19), the Office Action alleges that "queuing said first portion of said first frame( see column 6, lines 28-30, processor receives packets from the IP router that are to [sic] directed to the hub and queues them, see also col. 6, lines 63-32, [sic] each 15 CPE are scheduled to transmit which reads on queued first than scheduled" (Office Action, page 3). However, *Raleigh* teaches:

IP packets to be transmitted are forwarded to MAC processor 318 from transmit priority processor 324. Transmit priority processor 324 receives packets from IP router 308 that are to be directed to hub 102 and queues them in order of priority.

(*Raleigh*, col. 6, lines 26-30, emphasis added). This is in contradiction to the Office Action's position that **"a frame is ... a unit of time ..."** (Office Action, page 3). Applicants submit that **packets are not units of time.**

In addition, while *Raleigh* teaches that "bandwidth management processor 210 forwards assignments of frequency, data rate, and transmission frame..." (col. 5, lines 35-36), *Raleigh* does not disclose or suggest transmission of portions of a frame. Rather, as discussed in section I.B.2 above, *Raleigh* teaches simultaneous transmission by CPEs at different center-frequencies during a frame. Thus, *Raleigh* does not disclose or suggest "queuing said first portion of said first frame" as recited in claim 1.

The Office Action also alleges that "Matsuoka et al. teaches queuing said first portion of said first frame (see [0015], lines 1-6, buffer unit for fragmenting variable-length packets into fixed length packets, storing (queuing) the fixed-length **packets** (portions of variable-length packets))" (Office Action, page 4, emphasis added). This is in contradiction to the Office Action's position that "**a frame is ... a unit of time ...**" (Office Action, page 3). Applicants submit that **packets** are not **units of time**. *Matsuoka* does not teach or suggest queuing a portion of a "**unit of time**." Thus, *Matsuoka* does not disclose or suggest "queuing said first portion of said first frame" as alleged.

Therefore, *Raleigh* in view of *Matsuoka* does not teach or suggest "queuing said first portion of said first frame" as recited in claim 1.

#### **4. Transmitting said first portion of said first frame**

The Office Action states that "a request access (RA) frame is where individual CPEs may request to the common transmission medium [*sic*] ... in an A frame 15 CPEs are scheduled to transmit each 2M Mbps [*sic*]" (Office Action, page 3). The Office Action appears to allege that transmission by one of the 15 CPEs corresponds to "transmitting said first portion of said first frame at said first transmission rate into a shared-communications channel." Specifically, *Raleigh* discloses "In an A frame 404, 15 CPEs 1-15 are scheduled to transmit, each transmitting ... at differing center-frequencies" (col. 6, lines 63-64). However, *Raleigh* teaches that "A frame is ... a **unit of time** for which access to the common transmission medium may be assigned to one or more CPEs" (col. 6, lines 41-44, emphasis added). Thus, *Raleigh* does not disclose or suggest "transmitting said first portion of said first frame" as recited in claim 1, but rather a CPE which is scheduled to transmit during "a **unit of time** for which access to the common transmission medium [*is*] assigned". Nor does *Raleigh* teach or suggest assigning different **time portions** of a frame to CPEs.

Even assuming, *arguendo*, that a portion of the frequency domain assigned to a CPE corresponds to a portion of a frame, *Raleigh* does not teach that the portion of the frequency

domain has a **time length** "less than said frame length." Nor does *Raleigh* disclose transmitting portions of a "**unit of time**." As is well established in the law, the Examiner must instead consider the claims as a whole. *Hartness International, Inc. v. Simplimatic Engineering Co.*, 819 F.2d 1100, 2 USPQ2d 1826 (Fed. Cir. 1987) (In determining obviousness, "the inquiry is not whether each element existed in the prior art, but whether the prior art made obvious the invention as a whole for which patentability is claimed").

The addition of *Matsuoka* does not overcome this deficiency. *Matsuoka* does not disclose or suggest transmitting a portion of a "**unit of time**." Therefore, *Raleigh* in view of *Matsuoka* does not teach or suggest "transmitting said first portion of said first frame" as recited in claim 1.

**5. Receiving a second portion of said first frame ...**

The Office Action appears to allege that "receiving a second portion (see figure 4a, section CPE X(X represents any one of 1-32) ) of said first frame after said transmission of said first portion has started" corresponds to "a request access (RA) frame is where individual CPEs may request to the common transmission medium [sic] ... in an A frame 15 CPEs are scheduled to transmit each 2M Mbps, [sic] In frame B, CPEs 2 then 5 then 6 then 7... are scheduled to transmit" (Office Action, page 3). Specifically, *Raleigh* discloses that "In an A frame 404, 15 CPEs 1-15 are scheduled to transmit, each transmitting ... at differing center frequencies. In a B frame 406, a different set of CPEs 2, 5, 6, 7, 9, 12, 14, 15, 17, 20, 21, 22, 24, 26, and 30 are scheduled to transmit" (col. 6. lines 63-67). However, *Raleigh* teaches that "A frame is ... a **unit of time** for which access to the common transmission medium may be assigned to one or more CPEs" (col. 6, lines 41-44, emphasis added). Thus, *Raleigh* does not disclose or suggest "receiving a second portion of said first frame" as recited in claim 1, but rather a CPE which is scheduled to transmit during "a **unit of time** for which access to the common transmission medium [is] assigned". Applicants respectfully submit that "CPEs are scheduled to transmit" is different than "receiving a second portion of said first frame" as recited in claim 1.



Furthermore, while *Raleigh* discloses that "In an A frame 404, 15 CPEs 1-15 are scheduled to transmit... In a B frame 406, a different set of CPEs 2, 5, 6, 7, 9, 12, 14, 15, 17, 20, 21, 22, 24, 26, and 30 are scheduled to transmit" (col. 6. lines 63-67), *Raleigh* does not teach or suggest that CPEs are sequentially scheduled to transmit as alleged. Nor does *Raleigh* disclose sequentially transmitting during a frame. Rather, as discussed in section I.B.2 above, *Raleigh* teaches simultaneous transmission by CPEs at different center-frequencies during a frame. Even assuming, *arguendo*, that a portion of the frequency domain assigned to a CPE corresponds to a portion of a frame, *Raleigh* does not teach that portions of the frequency domain related to a frame are transmitted at different times. As illustrated in FIGS. 4A and 4B, portions of the frequency domain related to a frame extend over the entire frame time. *Raleigh* does not teach that the portion of the frequency domain has a **time length** less than said frame length. Nor does *Raleigh* disclose receiving portions of a **"unit of time."** Thus, *Raleigh* does not teach or suggest "receiving a second portion of said first frame after said transmission of said first portion has started" as recited in claim 1.

The addition of *Matsuoka* does not overcome this deficiency. *Matsuoka* does not disclose or suggest receiving a portion of a **"unit of time"**, much less "receiving a second portion of said first frame after said transmission of said first portion has started" as recited in claim 1. Therefore, *Raleigh* in view of *Matsuoka* does not teach or suggest "receiving a second portion of said first frame after said transmission of said first portion has started" as recited in claim 1.

## 6. Summary

For at least the reasons described above, *Raleigh* in view of *Matsuoka* fails to disclose, teach or suggest all of the features recited in claim 1. Therefore, Applicants respectfully submit that the rejection of claim 1 be withdrawn.

**C. Dependent Claims 2-4**

Because independent claim 1 is allowable over *Raleigh* in view of *Matsuoka*, Applicants respectfully submit that claims 2-4 are allowable for at least the reason that each depends from an allowable claim. *In re Fine*, 837 F.2d 1071, 5 U.S.P.Q. 2d 1596, 1598 (Fed. Cir. 1988). Therefore, Applicants respectfully request that the rejection of claims 2-4 be withdrawn.

**D. Claim 2**

Applicants' claim 2 provides as follows (emphasis added):

The method of claim 1 wherein **said description further comprises a second transmission rate and at least one form of modulation.**

Notwithstanding, and in addition to, the arguments discussed above, Applicants respectfully request that the rejection of claim 2 be withdrawn for at least the reason that *Raleigh* in view of *Matsuoka* fails to disclose, teach, or suggest at least the features recited and emphasized above in claim 2.

As discussed in section I.B.1 above, the Office Action appears to allege that "a description" corresponds to "center-frequencies, data rates and frame times." In addition, the Office Action appears to allege that "said description further comprises ... at least one form of modulation" corresponds to "any known MAC scheme may be used to control access to the medium in this frame such as CSMA, CSMA/CD etc. When RA frame includes an OFMD burst" (Office Action, page 4). However, *Raleigh* teaches:

The bandwidth management processor 210 forwards assignments of frequency, data rate, and transmission frame to MAC processor 206 for inclusion in MAC packets to be transmitted downstream. These assignments of center-frequency, data rate, and transmission frame provide the CPEs the information regarding the time-frequency division of the upstream medium. This information is referred to as the MAP.

(*Raleigh*, col. 5, lines 34-42). *Raleigh* does not teach assigning "forms of modulation" to frames or inclusion of "forms of modulation" in MAC packets. Rather, *Raleigh* discloses:

The present invention does not assume a particular modulation system. Representative modulation systems include QAM and OFDM. ...

Baseband physical layer processor 202 includes hardware for implementing error correction coding, and any particular modulation scheme employed such as OFDM or QAM.

(*Raleigh*, col. 4, line 58 though col. 5, line 2). Thus, *Raleigh* fails to disclose or suggest "said description further comprises ... at least one form of modulation" as recited in claim 2.

The addition of *Matsuoka* does not overcome this deficiency. *Matsuoka* does not disclose or suggest modulation. Therefore, Applicants respectfully submit that *Raleigh* in view of *Matsuoka* fails to disclose, teach or suggest all of the features recited in claim 2 and respectfully request that the rejection of claim 2 be withdrawn.

#### E. Claim 4

Applicants' claim 4 provides as follows (emphasis added):

The method of claim 1 further comprising ***queuing said second portion of said first frame, said second portion having a second length less than said frame length***, said second length based on said first transmission rate and a time required to receive said second portion.

Notwithstanding, and in addition to, the arguments discussed above, Applicants respectfully request that the rejection of claim 4 be withdrawn for at least the reason that *Raleigh* in view of *Matsuoka* fails to disclose, teach, or suggest at least the features recited and emphasized above in claim 4.

Even though the Office Action acknowledges "*Raleigh et al.* fails to specifically state queuing a portion of the frame" (Office Action, page 19), the Office Action appears to allege that "further comprising queuing said second portion of said first frame wherein the length of said second portion is less than said frame length, and is based on said first transmission rate and the time required to receive said second portion" corresponds to "processor receives packets from the IP router that are to [*sic*] directed to the hub and queues them, ... a request access (RA) frame is where individual CPEs may request to the common transmission medium [*sic*] ... in an A frame 15 CPEs are scheduled to transmit each 2M Mbps, [*sic*] In frame B, CPEs 2 then

5 then 6 then 7... are scheduled to transmit"" (Office Action, page 5). However, *Raleigh* teaches:

IP packets to be transmitted are forwarded to MAC processor 318 from transmit priority processor 324. Transmit priority processor 324 receives packets from IP router 308 that are to be directed to hub 102 and queues them in order of priority.

(*Raleigh*, col. 6, lines 26-30, emphasis added). This is in contradiction to the Office Action's position that "**a frame is ... a unit of time** ..." (Office Action, page 3). Applicants submit that **packets are not units of time**. Thus, *Raleigh* does not disclose or suggest "queuing said second portion of said first frame" as recited in claim 4.

Furthermore, *Raleigh* specifically discloses that "In an A frame 404, 15 CPEs 1-15 are scheduled to transmit, each transmitting ... at differing center frequencies. In a B frame 406, a different set of CPEs 2, 5, 6, 7, 9, 12, 14, 15, 17, 20, 21, 22, 24, 26, and 30 are scheduled to transmit" (col. 6, lines 63-67). However, *Raleigh* teaches that "A frame is ... **a unit of time** for which access to the common transmission medium may be assigned to one or more CPEs" (col. 6, lines 41-44, emphasis added). Thus, *Raleigh* does not disclose or suggest "queuing said second portion of said first frame" as recited in claim 4, but rather a CPE which is scheduled to transmit during "a **unit of time** for which access to the common transmission medium [is] assigned". Applicants respectfully submit that "CPEs are scheduled to transmit" is different than "queuing said second portion of said first frame" as recited in claim 4.

The Office Action also alleges that "Matsuoka et al. teaches queuing said first portion of said first frame (see [0015], lines 1-6, buffer unit for fragmenting variable-length packets into fixed length packets, storing (queuing) the fixed-length **packets** (portions of variable-length packets))" (Office Action, page 5, emphasis added). This is in contradiction to the Office Action's position that "**a frame is ... a unit of time** ..." (Office Action, page 3). Applicants submit that **packets are not units of time**. *Matsuoka* does not teach or suggest queuing a

portion of a "**unit of time**." Thus, *Matsuoka* does not disclose or suggest "queuing said second portion of said first frame" as alleged.

Therefore, *Raleigh* in view of *Matsuoka* does not teach or suggest "queuing said second portion of said first frame, said second portion having a second length less than said frame length" as recited in claim 4. Thus, Applicants respectfully submit that *Raleigh* in view of *Matsuoka* fails to disclose, teach or suggest all of the features recited in claim 4 and respectfully request that the rejection of claim 4 be withdrawn.

#### **F. Independent Claim 5**

Applicants' claim 5 provides as follows (emphasis added):

An apparatus comprising:

***an interface controller for:***

***(1) receiving a first portion of a first frame; and***

***(2) receiving a second portion of said first frame;***

***a memory for:***

***(1) storing a description of said first frame*** wherein said description comprises a frame length and a first transmission rate; and

***(2) queuing said first portion of said first frame in a queue having a size based on said first transmission rate and a time required to receive said first portion; and***

***a transmitter for transmitting said first portion of said first frame at said first transmission rate into a shared communications channel.***

Applicants respectfully request that the rejection of independent claim 5 be withdrawn for at least the reason that *Raleigh* in view of *Matsuoka* fails to disclose, teach, or suggest at least the features recited and emphasized above in claim 5.

##### **1. An interface controller for ... receiving a first portion of a first frame**

The Office Action appears to allege that "an interface controller for ... receiving a first portion of a first frame" corresponds to a "MAC processor ... some of the data is extracted including MAP" (Office Action, page 3). As cited by the Office Action, *Raleigh* teaches:

A MAC processor 318 operates to assemble and disassemble packets conforming to the operant MAC protocol. Much of the data extracted from the received MAC packets is in the form of IP packets which are forwarded to IP router 308. Some of the extracted data includes the MAP which carries instructions assigning transmission center-frequencies, data

rates and frame times. These instructions are forwarded to a radio link supervision processor 320.

(*Raleigh*, col. 6, lines 9-16). Thus, the Office Action appears to allege that "a first portion of a first frame" corresponds to an "IP **packet**." However, this is in contradiction to the Office Action's position that "a frame is ... a **unit of time** ..." (Office Action, page 3, emphasis added). Applicants submit that IP **packets** are not **units of time**, much less portions of units of time. In addition, *Raleigh* does not disclose receiving portions of a "**unit of time**," much less the MAC processor receiving portions of a "**unit of time**."

The Office Action also appears to allege "a first portion of a first frame" corresponds to the "figure 4a, section 402, RA frame" and "said first frame" corresponds to "figure 4a, Frame A, B, C, D or E" (Office Action, page 6). However, *Raleigh* teaches that "FIG. 4A shows a series of frames in the time domain" (col. 6, lines 40-41). In addition, the Office Action confirms that "frame A, (one full frame), is made of 15 parts labeled CPE" (Office Action, page 9). *Raleigh* teaches that frames B-E are also divided into sets of CPEs (col. 6, line 63 to col. 7, line 5). Thus, RA frame 402 is not a portion of Frames A 404, B 406, C 408, D 410, or E 412. Therefore, *Raleigh* does not disclose, teach, or suggest "an interface controller for ... receiving a first portion of a first frame" as recited in claim 5.

The addition of *Matsuoka* does not overcome this deficiency. *Matsuoka* does not teach or suggest receiving a portion of a "**unit of time**." Therefore, *Raleigh* in view of *Matsuoka* does not teach or suggest "an interface controller for ... receiving a first portion of a first frame" as recited in claim 5.

**2. An interface controller for ... receiving a second portion of said first frame**

The Office Action appears to allege that "an interface controller for ... receiving a second portion of said first frame" corresponds to a "transmit priority processor ... processor receives packets from the IP router that are to be directed to the hub" (Office Action, page 6). *Raleigh* teaches that "IP **packets** ... are forwarded to IP router 308" (col. 6, line 12-13, emphasis

added). Thus, the Office Action appears to allege that "a second portion of a first frame" corresponds to an "IP packet." However, this is in contradiction to the Office Action's position that "a frame is ... a **unit of time** ..." (Office Action, page 3, emphasis added). Applicants submit that IP **packets** are not **units of time**, much less portions of units of time. Nor does *Raleigh* disclose receiving portions of a "**unit of time**," much less the transmit priority processor receiving portions of a "**unit of time**." Thus, *Raleigh* does not teach or suggest "an interface controller for ... receiving a second portion of said first frame" as recited in claim 5.

The Office Action also appears to allege that "an interface controller ... for... receiving a second portion (see figure 4a, section CPE X(X represents any one of 1-32)) of said first frame" [*sic*] corresponds to "in an A frame 15 CPEs are scheduled to transmit each 2M Mbps, [*sic*] In frame B, CPEs 2 then 5 then 6 then 7... are scheduled to transmit" (Office Action, page 6). Specifically, *Raleigh* discloses that "In an A frame 404, 15 CPEs 1-15 are scheduled to transmit, each transmitting ... at differing center frequencies. In a B frame 406, a different set of CPEs 2, 5, 6, 7, 9, 12, 14, 15, 17, 20, 21, 22, 24, 26, and 30 are scheduled to transmit" (col. 6, lines 63-67). However, *Raleigh* teaches that "A frame is ... a **unit of time** for which access to the common transmission medium may be assigned to one or more CPEs" (col. 6, lines 41-44, emphasis added). Thus, *Raleigh* does not disclose or suggest "receiving a second portion of said first frame" as recited in claim 5, but rather a CPE which is scheduled to transmit during "a **unit of time** for which access to the common transmission medium [*is*] assigned". Applicants respectfully submit that "CPEs are scheduled to transmit" is different than "receiving a second portion of said first frame" as recited in claim 5.

The addition of *Matsuoka* does not overcome this deficiency. *Matsuoka* does not disclose or suggest receiving a portion of a "**unit of time**", much less "an interface controller for ... receiving a second portion of said first frame" as recited in claim 5. Therefore, *Raleigh* in view of *Matsuoka* does not teach or suggest "an interface controller for ... receiving a second portion of said first frame" as recited in claim 5.

### **3. Memory**

The Office Action alleges "radio link supervisor processor, which reads on memory for storing description", is disclosed in FIG. 3 of *Raleigh*" (Office Action, page 6). However, there exists no indication of "memory" in FIG. 3. Nor is "memory" even mentioned in *Raleigh*. Thus, *Raleigh* does not disclose or suggest "An apparatus comprising ... memory" as recited in claim 5.

Moreover, Applicants submit that a processor is different than memory. If the Office Action is alleging that this explicit limitation is inherent in the radio link supervisor processor, Applicants respectfully submit that extrinsic evidence must be produced which establishes that the limitation would have been recognized by persons having ordinary skill in the art in view of the *Raleigh* disclosure. *In re Robertson*, 169 F.3d 743, 49 USPQ2d 1949 (Fed. Cir. 1999). Consequently, because of the lack of extrinsic evidence required under *In re Robertson*, the statements in the Office Action are merely conclusory and not adequately supported, and the rejection of claim 5 is improper.

### **4. Memory for ... storing a description of said first frame**

The Office Action appears to allege that "memory for ... storing a description of said first frame wherein said description comprises a frame length and a first transmission rate" corresponds to "section 320, Radio Link Supervisor ... data extracted from the received MAC packets included MAP which carries instructions assigning transmission center frequencies, data rates and frame times, instructions are forwarded to radio link supervisor" (Office Action, page 6). While *Raleigh* teaches:

Some of the extracted data includes the MAP which carries instructions assigning transmission center-frequencies, data rates and frame times. These instructions are forwarded to a radio link supervision processor 320. Radio link supervision processor 320 controls the data rate, transmission times and center-frequencies of operation for baseband physical layer processor 316 and radio converter 314.



(*Raleigh*, col. 6, lines 14-21), Applicants submit that forwarding instructions is different than "storing a description of a first frame" as recited in claim 5. Thus, *Raleigh* does not disclose or suggest "storing a description of a first frame," much less the radio link supervision processor "storing a description of said first frame." Nor does *Raleigh* disclose the radio link supervision processor having "memory," much less storing in "memory." The addition of *Matsuoka* does not overcome this deficiency. *Matsuoka* does not disclose or suggest "storing a description of a first frame" as recited in claim 5. Thus, *Raleigh* in view of *Matsuoka* does not teach or suggest "memory for ... storing a description of said first frame" as recited in claim 5.

**5. Memory for ... queuing said first portion of said first frame ...**

Even though the Office Action acknowledges "*Raleigh* et al. fails to specifically state queuing a portion of the frame" (Office Action, page 19), the Office Action alleges "A frame, 15 parts are scheduled to transmit, which reads on CPEs are queued" (Office Action, page 6). Applicants submit that a CPE (customer premise equipment) is not a frame. Applicants also submit that "scheduled to transmit" is different than "queued" as recited in claim 5. Thus, *Raleigh* does not disclose or suggest "queuing said first portion of said first frame" as recited in claim 5.

The Office Action also appears to allege that "memory for ... queuing said first portion of said first frame wherein the size of said queue is based on said first transmission rate and the time required to receive said first portion" corresponds to "transmit priority processor indicates when data is to be transmitted and the amount of data to be transmitted to a queue monitor, in response the queue monitor generates access request, [sic] depicts a MAP frame with data rate and center frequency assignments" (Office Action, pages 6-7). However, *Raleigh* teaches:

IP packets to be transmitted out over network 100 are prioritized by a transmit priority processor 216. For example, voice packets and other real-time data are given a higher priority than other kinds of data. Priority processor 216 queues up IP packets to be transmitted and forwards them to MAC processor 206 in order of priority.

(*Raleigh*, col. 5, lines 54-60). Thus, the Office Action appears to allege that "a first portion of a first frame" corresponds to an "IP **packet**." However, this is in contradiction to the Office Action's position that "a frame is ... a **unit of time** ..." (Office Action, page 3, emphasis added). Applicants submit that IP **packets** are not **units of time**, much less portions of units of time. In addition, *Raleigh* does not disclose queuing portions of a "**unit of time**," much less the transmit priority processor queuing portions of a "**unit of time**." Furthermore, *Raleigh* does not disclose the transmit priority processor having "memory," much less queuing in "memory." Nor does *Raleigh* disclose or suggest "queuing a description of a first frame," much less the transmit priority processor "queuing a description of said first frame." Thus, *Raleigh* does not teach or suggest "memory for ... queuing said first portion of said first frame" as recited in claim 5.

The Office Action also alleges that "Matsuoka et al. teaches queuing said first portion of said first frame (see [0015], lines 1-6, buffer unit for fragmenting variable-length packets into fixed length packets, storing (queuing) the fixed-length **packets** (portions of variable-length packets))" (Office Action, page 7, emphasis added). This is in contradiction to the Office Action's position that "**a frame is ... a unit of time** ..." (Office Action, page 3). Applicants submit that **packets** are not **units of time**. *Matsuoka* does not teach or suggest queuing a portion of a "**unit of time**." Thus, *Matsuoka* does not disclose or suggest "queuing said first portion of said first frame" as alleged. Therefore, *Raleigh* in view of *Matsuoka* does not teach or suggest "memory for ... queuing said first portion of said first frame" as recited in claim 5.

In addition, the Office Action appears to allege that "transmit priority processor indicates when data is to be transmitted and the amount of data to be transmitted to a queue monitor, in response the queue monitor generates access request, depicts a MAP frame with data rate and center frequency" corresponds to "the size of said queue is based on said first transmission rate and the time required to receive said first portion" (Office Action, pages 6-7). Even though *Raleigh* teaches:

A queue monitor 322 originates requests for access to the common transmission medium. ... The requests include the amount and priority of information to be transmitted. ... Transmit priority processor 324 receives packets from IP router 308 that are to be directed to hub 102 and queues them in order of priority. Again, voice and other real-time traffic is given higher priority. Transmit priority processor 324 also indicates when data is to be transmitted and the amount of data to be transmitted to queue monitor 322. It is in response to these inputs that queue monitor 322 generates access requests.

(*Raleigh*, col. 6, lines 22-35), *Raleigh* does not disclose "a queue having a size." Nor does *Raleigh* teach or suggest what the size of the queue is based on, much less that "a queue having a size based on said first transmission rate" or "a queue having a size based on ... a time required to receive said first portion."

The addition of *Matsuoka* does not overcome this deficiency. While *Matsuoka* teaches:

a queue length managing process of the output queues 28-1 through 28-m. A first queue length counter for managing a number of write addresses stored in each of the output queues 28-1 through 28-m, and a second queue length counter for managing a virtual queue length equal to a sum of a number of addresses of the unicasting packets and a number of virtual addresses (one with respect to one frame), with respect to the output queues 28-1 through 28-m.

(*Matsuoka*, paragraph 111), *Matsuoka* does not disclose "a queue having a size based on said first transmission rate" or "a queue having a size based on ... a time required to receive said first portion" as recited in claim 5. Thus, *Raleigh* in view of *Matsuoka* does not teach or suggest "memory for ... queuing said first portion of said first frame in a queue having a size based on said first transmission rate and a time required to receive said first portion" as recited in claim 5.

#### **6. Transmitting said first portion of said first frame**

The Office Action alleges that "a transmitter for transmitting said first portion of said first frame at said first transmission rate into a shared-communications channel" corresponds to "figure 3, section 314, radio converter" (Office Action, page 7). Specifically, *Raleigh* teaches:

FIG. 3 depicts a representative CPE 104 ... A radio converter 314 and a baseband physical layer processor 316 include hardware and software to support at least one downstream receiver and at least two upstream transmitters or a single upstream transmitter capable of varying its data rate.

(*Raleigh*, col. 5, line 61 through col. 6, line 9). Thus, the Office Action appears to allege that transmission by a CPE corresponds to “transmitting said first portion of said first frame at said first transmission rate into a shared-communications channel.” Specifically, *Raleigh* discloses “In an A frame 404, 15 CPEs 1-15 are scheduled to transmit, each transmitting ... at differing center-frequencies” (col. 6, lines 63-64). However, *Raleigh* teaches that “A frame is ... a **unit of time** for which access to the common transmission medium may be assigned to one or more CPEs” (col. 6, lines 41-44, emphasis added). Thus, *Raleigh* does not disclose or suggest “transmitting said first portion of said first frame” as recited in claim 5, but rather a CPE which is scheduled to transmit during “a **unit of time** for which access to the common transmission medium [is] assigned”. Nor does *Raleigh* disclose transmitting portions of a “**unit of time**.”

The addition of *Matsuoka* does not overcome this deficiency. *Matsuoka* does not disclose or suggest transmitting a portion of a “**unit of time**.” Therefore, *Raleigh* in view of *Matsuoka* does not teach or suggest “a transmitter for transmitting said first portion of said first frame at said first transmission rate into a shared-communications channel” as recited in claim 5.

## **7. Summary**

For at least the reasons described above, *Raleigh* in view of *Matsuoka* fails to disclose, teach or suggest all of the features recited in claim 5. Therefore, Applicants respectfully submit that the rejection of claim 5 be withdrawn.

## **G. Dependent Claims 6-9**

Because independent claim 5 is allowable over *Raleigh* in view of *Matsuoka*, Applicants respectfully submit that claims 6-9 are allowable for at least the reason that each depends from an allowable claim. *In re Fine*, 837 F.2d 1071, 5 U.S.P.Q. 2d 1596, 1598 (Fed. Cir. 1988). Therefore, Applicants respectfully request that the rejection of claims 6-9 be withdrawn.

**H. Claim 6**

Applicants' claim 6 provides as follows (emphasis added):

The apparatus of claim 5 wherein **said description further comprises** a second transmission rate and **at least one form of modulation**.

Notwithstanding, and in addition to, the arguments discussed above, Applicants respectfully request that the rejection of claim 6 be withdrawn for at least the reason that *Raleigh* fails to disclose, teach, or suggest at least the features recited and emphasized above in claim 6.

As discussed in section I.B.1 above, the Office Action appears to allege that "a description" corresponds to "center-frequencies, data rates and frame times." In addition, the Office Action appears to allege that "said description further comprises ... at least one form of modulation" corresponds to "any known MAC scheme may be used to control access to the medium in this frame such as CSMA, OFMD( modulation)" (Office Action, pages 7-8). However, *Raleigh* teaches:

The bandwidth management processor 210 forwards assignments of frequency, data rate, and transmission frame to MAC processor 206 for inclusion in MAC packets to be transmitted downstream. These assignments of center-frequency, data rate, and transmission frame provide the CPEs the information regarding the time-frequency division of the upstream medium. This information is referred to as the MAP.

(*Raleigh*, col. 5, lines 34-42). *Raleigh* does not teach assigning "forms of modulation" to frames or inclusion of "forms of modulation" in MAC packets. Rather, *Raleigh* discloses:

The present invention does not assume a particular modulation system. Representative modulation systems include QAM and OFDM. ... Baseband physical layer processor 202 includes hardware for implementing error correction coding, and any particular modulation scheme employed such as OFDM or QAM.

(*Raleigh*, col. 4, line 58 though col. 5, line 2). Thus, *Raleigh* fails to disclose or suggest "said description further comprises ... at least one form of modulation" as recited in claim 6.

The addition of *Matsuoka* does not overcome this deficiency. *Matsuoka* does not disclose or suggest modulation. Therefore, Applicants respectfully submit that *Raleigh* in view

of *Matsuoka* fails to disclose, teach or suggest all of the features recited in claim 6 and respectfully request that the rejection of claim 6 be withdrawn.

#### I. Claim 8

Applicants' claim 8 provides as follows (emphasis added):

The apparatus of claim 5 wherein ***said memory is also for queuing said second portion of said first frame, said second portion having a length less than said frame length***, said length based on said first transmission rate and a time required to receive said second portion.

Notwithstanding, and in addition to, the arguments discussed above, Applicants respectfully request that the rejection of claim 8 be withdrawn for at least the reason that *Raleigh* fails to disclose, teach, or suggest at least the features recited and emphasized above in claim 8.

While the Office Action acknowledges "*Raleigh et al.* fails to specifically state queuing a portion of the frame" (Office Action, page 19), the Office Action alleges "A frame, 15 parts are scheduled to transmit... reads on CPEs are queued" (Office Action, page 8). Applicants submit that a CPE (customer premise equipment) is not a frame. Applicants also submit that "scheduled to transmit" is different than "queued" as recited in claim 8. Thus, *Raleigh* does not disclose or suggest "queuing said second portion of said first frame" as recited in claim 8.

The Office Action also alleges "queuing reads on memory" (Office Action, page 8). Applicants submit that "queuing" is not "memory." As discussed in section I.F.3 above, *Raleigh* does not disclose or suggest "An apparatus comprising ... memory" as recited in claim 5. Thus, *Raleigh* does not teach or suggest "said memory is also for queuing said second portion of said first frame" as recited in claim 8.

In addition, the Office Action alleges that "*Matsuoka et al.* teaches queuing said first portion of said first frame (see [0015], lines 1-6, buffer unit for fragmenting variable-length packets into fixed length packets, storing (queuing) the fixed-length **packets** (portions of variable-length packets))" (Office Action, page 7, emphasis added). This is in contradiction to the Office Action's position that "**a frame is ... a unit of time ...**" (Office Action, page 3).

Applicants submit that *packets* are not *units of time*. *Matsuoka* does not teach or suggest queuing a portion of a "*unit of time*." Thus, *Matsuoka* does not disclose or suggest "queuing said second portion of said first frame" as alleged. Therefore, *Raleigh* in view of *Matsuoka* does not teach or suggest "said memory is also for queuing said second portion of said first frame" as recited in claim 8.

Furthermore, does not disclose "said second portion having a length less than said frame length" as recited in claim 8. *Raleigh* teaches "**A frame is here understood to be a unit of time** for which access to the common transmission medium may be assigned to one or more CPEs" (col. 6, lines 41-44). *Raleigh* does not disclose assigning different *time portions* of a frame to CPEs. Even assuming, *arguendo*, that a portion of the frequency domain assigned to a CPE corresponds to a portion of a frame, *Raleigh* does not teach that the portion of the frequency domain has a *time length* "less than said frame length." Thus, *Raleigh* does not disclose, teach, or suggest "said memory is also for queuing said second portion of said first frame, said second portion having a length less than said frame length" as recited in claim 8.

The addition of *Matsuoka* does not overcome this deficiency. *Matsuoka* does not disclose or suggest queuing a portion of a "*unit of time*." Therefore, Applicants respectfully submit that *Raleigh* in view of *Matsuoka* fails to disclose, teach or suggest all of the features recited in claim 8 and respectfully request that the rejection of claim 8 be withdrawn.

**J. Independent Claim 10**

Applicants' claim 10 provides as follows (emphasis added):

A method comprising:

**storing a first description** wherein said first description comprises:

- (1) a first frame length; and
- (2) a first transmission rate;

**transmitting a queued portion of a first frame** at said first transmission rate into a shared-communications channel;  
removing said queued portion of said first frame wherein said removal is based on said first frame length;

**storing a second description** wherein said second description comprises:

- (1) a second frame length; and
- (2) a second transmission rate;

**queuing a first portion of a second frame, said first portion having a first length less than said second frame length**, said first length based on said first transmission rate; and

**transmitting said first portion of said second frame** at said second transmission rate into said shared-communications channel.

Applicants respectfully request that the rejection of independent claim 10 be withdrawn for at least the reason that *Raleigh* in view of *Matsuoka* fails to disclose, teach, or suggest at least the features recited and emphasized above in claim 10.

**1. Storing a first description**

The Office Action alleges that "MAP instructions are forwarded to a radio link supervisor processor, which reads on storing a description( instructions), the processor has a copy of the instruction to process, frequencies data rates, and frame times" (Office Action, page 9). While *Raleigh* teaches:

Some of the extracted data includes the MAP which carries instructions assigning transmission center-frequencies, data rates and frame times. These instructions are forwarded to a radio link supervision processor 320. Radio link supervision processor 320 controls the data rate, transmission times and center-frequencies of operation for baseband physical layer processor 316 and radio converter 314.

(*Raleigh*, col. 6, lines 14-21), Applicants submit that forwarding instructions is different than "storing a first description" as recited in claim 10. Thus, *Raleigh* does not disclose the radio link supervision processor "storing a first description." The addition of *Matsuoka* does not overcome



this deficiency. *Matsuoka* does not disclose or suggest “storing a first description” as recited in claim 10. Thus, *Raleigh* in view of *Matsuoka* does not teach or suggest “storing a first description” as recited in claim 10.

### **2. Transmitting a queued portion of a first frame**

The Office Action states that “a request access (RA) frame is where individual CPEs may request to the common transmission medium [sic] ... in an A frame 15 CPEs are scheduled to transmit each 2M Mbps [sic]” (Office Action, page 10). The Office Action alleges that “each 15 CPE are scheduled to transmit which reads on queued first than scheduled” (Office Action, page 10). Applicants submit that a CPE (customer premise equipment) is not a frame. Applicants also submit that “scheduled to transmit” is different than “transmitting a queued portion of a first frame” as recited in claim 10. Thus, *Raleigh* does not disclose or suggest “transmitting a queued portion of a first frame” as recited in claim 10. The addition of *Matsuoka* does not overcome this limitation. *Matsuoka* does not disclose queuing **portions of a “unit of time,”** much less transmitting portions of a **“unit of time.”** Thus, *Raleigh* in view of *Matsuoka* does not teach or suggest “transmitting a queued portion of a first frame” as recited in claim 10.

### **3. Storing a second description**

The Office Action appears to allege that “storing a second description” correspond to “data extracted from the received MAC packets included MAP” (Office Action, page 10). In particular, the Office Action appears to allege that “a description” corresponds to “center-frequencies, data rates and frame times.” However, *Raleigh* teaches that:

[In a radio hub 102,] bandwidth management processor 210 forwards assignments of frequency, data rate, and transmission frame to MAC processor 206 for inclusion in MAC packets to be transmitted downstream. These assignments of center-frequency, data rate, and transmission frame provide the CPEs the information regarding the time-frequency division of the upstream medium. This information is referred to as the MAP.

This MAP information is also forwarded to the radio link supervision processor 208. The radio link supervisor 208 partitions the baseband

physical layer processor 202 and the radio converter 204 for proper reception of the upstream according to the MAP information. ...

[In a CPE 104,] MAC processor 318 operates to assemble and disassemble packets conforming to the operant MAC protocol. Much of the data extracted from the received MAC packets is in the form of IP packets which are forwarded to IP router 308. Some of the extracted data includes the MAP which carries instructions assigning transmission center-frequencies, data rates and frame times. These instructions are forwarded to a radio link supervision processor 320. Radio link supervision processor 320 controls the data rate, transmission times and center-frequencies of operation for baseband physical layer processor 316 and radio converter 314.

(*Raleigh*, col. 5, lines 35-47 and col. 6, lines 10-21). *Raleigh* does not teach storing the "data extracted from the received MAC packets." Thus, *Raleigh* fails to disclose or suggest either "storing a second description" as recited in claim 10. The addition of *Matsuoka* does not overcome this deficiency. *Matsuoka* does not disclose or suggest "storing a second description" as recited in claim 10. Thus, *Raleigh* in view of *Matsuoka* does not teach or suggest "storing a second description" as recited in claim 10.

#### 4. ***Queuing a first portion of a second frame ...***

The Office Action appears to allege that "queuing a first portion of a second frame" corresponds to "processor receives **packets** from the IP router that are to [sic] directed to the hub and queues them" (Office Action, pages 10-11, emphasis added). However, *Raleigh* teaches that "data ... is in the form of IP **packets** which are forwarded to IP router 308" (col. 6, lines 12-14, emphasis added). This is in contradiction to the Office Action's position that *Raleigh* teaches "**a frame is ... a unit of time** for which access to the common transmission medium may be assigned to one or more CPEs" (Office Action, page 3, emphasis added). Applicant submits that **packets are not "units of time."** Thus, *Raleigh* does not disclose or suggest "queuing a first portion of a second frame."

The Office Action further appears to allege that "see fig. 4a, Frame a is divided into 15 parts each part is less than the total frame length, frame A makes up the sum of all 15 portions" (Office Action, page 11). However, *Raleigh* teaches "**A frame is here understood to be a unit**

**of time** for which access to the common transmission medium may be assigned to one or more CPEs" (col. 6, lines 41-44). *Raleigh* does not disclose assigning different **time portions** of a frame to CPEs. Even assuming, *arguendo*, that a portion of the frequency domain assigned to a CPE corresponds to a portion of a frame, *Raleigh* does not teach that the portion of the frequency domain has a **time length** "less than said frame length." Thus, *Raleigh* does not disclose, teach, or suggest "queuing a first portion of a second frame, said first portion having a first length less than said second frame length" as recited in claim 10.

The addition of *Matsuoka* does not overcome these limitations. *Matsuoka* does not disclose queuing **portions of a "unit of time."** While the Office Action also alleges that "Matsuoka et al. teaches queuing said first portion of said first frame (see [0015], lines 1-6, buffer unit for fragmenting variable-length packets into fixed length packets, storing (queuing) the fixed-length **packets** (portions of variable-length packets))" (Office Action, page 11, emphasis added), this is in contradiction to the Office Action's position that "**a frame is ... a unit of time** ..." (Office Action, page 3). Applicants submit that **packets** are not **units of time**. Thus, *Matsuoka* does not disclose or suggest "queuing said first portion of said first frame" as alleged.

Therefore, *Raleigh* in view of *Matsuoka* does not teach or suggest "queuing a first portion of a second frame, said first portion having a first length less than said second frame length" as recited in claim 10.

##### **5. Transmitting said first portion of said second frame**

The Office Action states that "a request access (RA) frame is where individual CPEs may request to the common transmission medium [*sic*] ... in an A frame 15 CPEs are scheduled to transmit each 2M Mbps [*sic*]" (Office Action, page 11). The Office Action appears to allege that transmission by one of the 15 CPEs corresponds to "transmitting said first portion of said second frame at said second transmission rate into said shared-communications channel." Specifically, *Raleigh* discloses "In an A frame 404, 15 CPEs 1-15 are scheduled to transmit,

each transmitting ... at differing center-frequencies" (col. 6, lines 63-64). However, *Raleigh* teaches that "A frame is ... a **unit of time** for which access to the common transmission medium may be assigned to one or more CPEs" (col. 6, lines 41-44, emphasis added). Thus, *Raleigh* does not disclose or suggest "transmitting said first portion of said second frame" as recited in claim 10, but rather a CPE which is scheduled to transmit during "a **unit of time** for which access to the common transmission medium [is] assigned". Nor does *Raleigh* disclose transmitting portions of a "**unit of time**."

The addition of *Matsuoka* does not overcome this deficiency. *Matsuoka* does not disclose or suggest transmitting a portion of a "**unit of time**." Therefore, *Raleigh* in view of *Matsuoka* does not teach or suggest "transmitting said first portion of said second frame" as recited in claim 10.

## **6. Summary**

For at least the reasons described above, *Raleigh* in view of *Matsuoka* fails to disclose, teach or suggest all of the features recited in claim 10. Therefore, Applicants respectfully submit that the rejection of claim 10 be withdrawn.

## **K. Dependent Claims 11-12**

Because independent claim 10 is allowable over *Raleigh* in view of *Matsuoka*, Applicants respectfully submit that claims 11-12 are allowable for at least the reason that each depends from an allowable claim. *In re Fine*, 837 F.2d 1071, 5 U.S.P.Q. 2d 1596, 1598 (Fed. Cir. 1988). Therefore, Applicants respectfully request that the rejection of claims 11-12 be withdrawn.

## **L. Claim 12**

Applicants' claim 12 provides as follows (emphasis added):

The method of claim 10 further comprising **queuing a second portion of said second frame, said second portion having a second length less than said second frame length**, said second length based on said second transmission rate.

Notwithstanding, and in addition to, the arguments discussed above, Applicants respectfully request that the rejection of claim 12 be withdrawn for at least the reason that *Raleigh* in view of *Matsuoka* fails to disclose, teach, or suggest at least the features recited and emphasized above in claim 12.

The Office Action appears to allege that "CPEs may simultaneously transmit at low data rate source" (Office Action, page 11) corresponds to "queuing a second portion of said second frame." Applicants submit that a CPE is not a portion of a frame. Applicants also submit that simultaneous transmission by CPEs is different than "queuing a second portion of said second frame" as recited in claim 12. Thus, *Raleigh* does not teach or suggest "queuing a second portion of said second frame" as recited in claim 12.

The Office Action appears to further allege that "queuing a second portion of said second frame, said second portion having a second length less than said second frame length, said second length based on said second transmission rate" corresponds to "a request access (RA) frame is where individual CPEs may request to the common transmission medium [sic] ... in an A frame 15 CPEs are scheduled to transmit each 2M Mbps, [sic] In frame B, CPEs 2 then 5 then 6 then 7... are scheduled to transmit" (Office Action, page 5). However, while *Raleigh* discloses that:

In an A frame 404, 15 CPEs 1-15 are scheduled to transmit... In a B frame 406, a different set of CPEs 2, 5, 6, 7, 9, 12, 14, 15, 17, 20, 21, 22, 24, 26, and 30 are scheduled to transmit.

(*Raleigh*, col. 6. lines 63-67), *Raleigh* does not teach or suggest that CPEs are sequentially scheduled to transmit as alleged. Nor does *Raleigh* disclose sequentially transmitting during a frame. Moreover, this contradicts the earlier Office Action statement that "CPEs may simultaneously transmit at low data rate source or one CPE may transmit at a high data rate" (Office Action, page 11). As discussed in section I.B.2 above, *Raleigh* teaches simultaneous transmission by CPEs at different center-frequencies during a frame.

Even assuming, *arguendo*, that a portion of the frequency domain assigned to a CPE corresponds to a portion of a frame, *Raleigh* does not teach that portions of the frequency domain related to a frame are transmitted at different times. As illustrated in FIGS. 4A and 4B, portions of the frequency domain related to a frame extend over the entire frame time. *Raleigh* does not teach that the portion of the frequency domain has a **time length** less than said frame length. Nor does *Raleigh* disclose queuing portions of a "**unit of time**." Thus, *Raleigh* does not teach or suggest "queuing a second portion of said second frame, said second portion having a second length less than said second frame length" as recited in claim 12.

The addition of *Matsuoka* does not overcome this deficiency. While the Office Action alleges that "Matsuoka et al. teaches queuing said first portion of said first frame (see [0015], lines 1-6, buffer unit for fragmenting variable-length packets into fixed length packets, storing (queuing) the fixed-length **packets** (portions of variable-length packets))" (Office Action, page 11, emphasis added), this is in contradiction to the Office Action's position that "**a frame is ... a unit of time ...**" (Office Action, page 3). Applicants submit that **packets** are not **units of time**. *Matsuoka* does not teach or suggest queuing a portion of a "**unit of time**." Thus, *Matsuoka* does not disclose or suggest "queuing said second portion of said first frame" as alleged.

Therefore, *Raleigh* in view of *Matsuoka* does not teach or suggest "queuing a second portion of said second frame, said second portion having a second length less than said second frame length" as recited in claim 12. Thus, Applicants respectfully submit that *Raleigh* in view of *Matsuoka* fails to disclose, teach or suggest all of the features recited in claim 12 and respectfully request that the rejection of claim 12 be withdrawn.

**M. Independent Claim 13**

Applicants' claim 13 provides as follows (emphasis added):

An apparatus comprising:

**a memory for:**

(1) **storing a first description** wherein said first description comprises a first frame length and a first transmission rate;

(2) **storing a second description** wherein said second description comprises a second frame length and a second transmission rate; and

(3) **queuing a first portion of a second frame, said first portion having a first length less than said second frame length**, said first length based on said first transmission rate;

a transmitter for:

(1) **transmitting a queued portion of a first frame** at said first transmission rate into a shared-communications channel; and

(2) **transmitting said first portion of said second frame** at said second transmission rate into said shared communications channel; and  
a processor for removing said first description and said queued portion of said first frame wherein said removal is based on said first frame length.

Applicants respectfully request that the rejection of independent claim 13 be withdrawn for at least the reason that *Raleigh* in view of *Matsuoka* fails to disclose, teach, or suggest at least the features recited and emphasized above in claim 13.

**1. Memory**

The Office Action alleges "radio link supervisor processor, which reads on memory for storing description", is disclosed in FIG. 3 of *Raleigh*" (Office Action, page 12). However, there exists no indication of "memory" in FIG. 3. Nor is "memory" even mentioned in *Raleigh*. Thus, *Raleigh* does not disclose or suggest "An apparatus comprising... a memory" as recited in claim 13.

Moreover, Applicants submit that a processor is different than memory. If the Office Action is alleging that this explicit limitation is inherent in the radio link supervisor processor, Applicants respectfully submit that extrinsic evidence must be produced which establishes that the limitation would have been recognized by persons having ordinary skill in the art in view of the *Raleigh* disclosure. *In re Robertson*, 169 F.3d 743, 49 USPQ2d 1949 (Fed. Cir. 1999).

Consequently, because of the lack of extrinsic evidence required under *In re Robertson*, the statements in the Office Action are merely conclusory and not adequately supported, and the rejection of claim 13 is improper.

**2. Memory for ... storing a first description**

The Office Action alleges that "MAP instructions are forwarded to a radio link supervisor processor... reads on storing a description (instructions)" (Office Action, page 12). While

*Raleigh* teaches:

Some of the extracted data includes the MAP which carries instructions assigning transmission center-frequencies, data rates and frame times. These instructions are forwarded to a radio link supervision processor 320. Radio link supervision processor 320 controls the data rate, transmission times and center-frequencies of operation for baseband physical layer processor 316 and radio converter 314.

(*Raleigh*, col. 6, lines 14-21), Applicants submit that forwarding instructions is different than "storing a first description" as recited in claim 13. Thus, *Raleigh* does not disclose or suggest "storing a first description," much less the radio link supervision processor "storing a first description." Nor does *Raleigh* disclose the radio link supervision processor having "memory," much less storing in "memory." The addition of *Matsuoka* does not overcome this deficiency. *Matsuoka* does not disclose or suggest "storing a first description" as recited in claim 13. Thus, *Raleigh* in view of *Matsuoka* does not teach or suggest "memory for ... storing a first description wherein said first description comprises a first frame length and a first transmission rate" as recited in claim 13.

**3. Memory for ... storing a second description**

The Office Action appears to allege that "memory for ... storing a second description wherein said second description comprises a second frame length and a second transmission rate" corresponds to a "MAC processor ... data extracted from the received MAC packets included MAP which carries instructions assigning transmission center frequencies, data rates and frame times" (Office Action, pages 12-13). While *Raleigh* teaches that "A MAC processor



318 operates to assemble and disassemble packets" (col. 6, lines 10-11), *Raleigh* does not disclose or suggest that "storing a description of a first frame," much less the MAC processor "storing a description of said first frame." Nor does *Raleigh* disclose the MAC processor having "memory," much less storing in "memory." The addition of *Matsuoka* does not overcome this deficiency. *Matsuoka* does not disclose or suggest "storing a first description" as recited in claim 13. Thus, *Raleigh* in view of *Matsuoka* does not teach or suggest "memory for ... storing a second description wherein said second description comprises a second frame length and a second transmission rate" as recited in claim 13.

**4. Memory for ... queuing a first portion of a second frame ...**

The Office Action appears to allege that "memory for ... queuing a first portion of a second frame, said first portion having a first length less than said second frame length, said first length based on said first transmission rate" corresponds to "figure 4a ... depicts a MAP frame with data rate and center frequency assignments ... Frame a is divided into 15 parts each part is less than the total frame length, frame A makes up the sum of all 15 portions, see also frame B and D" (Office Action, page 13). Specifically, *Raleigh* discloses:

In an A frame 404, 15 CPEs 1-15 are scheduled to transmit... In a B frame 406, a different set of CPEs 2, 5, 6, 7, 9, 12, 14, 15, 17, 20, 21, 22, 24, 26, and 30 are scheduled to transmit... In a D frame 410, the upstream spectrum is again divided among 15 CPEs 1, 4, 7, 8, 10, 13, 16, 19, 21, 22, 25, 27, 29, 30, and 32.

(*Raleigh*, col. 6. line 63 through col. 7, line 4).

However, *Raleigh* teaches "**A frame is here understood to be a unit of time** for which access to the common transmission medium may be assigned to one or more CPEs" (col. 6, lines 41-44). Even assuming, *arguendo*, that a portion of the frequency domain assigned to a CPE corresponds to a portion of a frame, *Raleigh* does not teach that the portion of the frequency domain has a **time length** less than said frame length. As illustrated in FIGS. 4A and 4B, portions of the frequency domain related to a frame extend over the entire frame time. Nor does *Raleigh* disclose queuing portions of a "**unit of time**," much less memory for queuing

portions of a "**unit of time**." Thus, *Raleigh* does not teach or suggest "queuing a first portion of a second frame, said first portion having a first length less than said second frame length" as recited in claim 13.

The addition of *Matsuoka* does not overcome this deficiency. While the Office Action alleges that "*Matsuoka et al.* teaches queuing said first portion of said first frame (see [0015], lines 1-6, buffer unit for fragmenting variable-length packets into fixed length packets, storing (queuing) the fixed-length **packets** (portions of variable-length packets))" (Office Action, page 11, emphasis added), this is in contradiction to the Office Action's position that "**a frame is ... a unit of time** ..." (Office Action, page 3). Applicants submit that **packets are not units of time**. *Matsuoka* does not teach or suggest queuing a portion of a "**unit of time**." Thus, *Matsuoka* does not disclose or suggest "queuing said second portion of said first frame" as recited in claim 13.

#### 5. **Transmitting a queued portion of a first frame**

The Office Action states that "a request access (RA) frame is where individual CPEs may request to the common transmission medium [sic] ... in an A frame 15 CPEs are scheduled to transmit each 2M Mbps [sic] ... in an A frame 15 CPEs are scheduled to transmit each 2M Mbps, [sic] In frame B, CPEs 2 then 5 then 6 then 7... are scheduled to transmit" (Office Action, page 13). However, *Raleigh* teaches that "A frame is ... a **unit of time** for which access to the common transmission medium may be assigned to one or more CPEs" (col. 6, lines 41-44, emphasis added). Thus, *Raleigh* does not disclose or suggest "transmitting a queued portion of a first frame" as recited in claim 13, but rather a CPE which is scheduled to transmit during "a **unit of time** for which access to the common transmission medium [is] assigned". Nor does *Raleigh* disclose transmitting portions of a "**unit of time**," much less queued portions of a "**unit of time**."

The addition of *Matsuoka* does not overcome this deficiency. *Matsuoka* does not disclose or suggest transmitting a portion of a "**unit of time**." Therefore, *Raleigh* in view of *Matsuoka*

does not teach or suggest "transmitting said first portion of said first frame" as recited in claim 13.

**6. Transmitting said first portion of said second frame**

The Office Action states that "in a E frame a single CPE9 occupies the entire upstream spectrum. Thus [many] CPEs may simultaneously transmit at low data rate source or one CPE may transmit at a high data rate... in an A frame 15 CPEs are scheduled to transmit each 2M Mbps, [sic] In frame B, CPEs 2 then 5 then 6 then 7... are scheduled to transmit" (Office Action, page 13). However, *Raleigh* teaches that "A frame is ... a **unit of time** for which access to the common transmission medium may be assigned to one or more CPEs" (col. 6, lines 41-44, emphasis added). Thus, *Raleigh* does not disclose or suggest "transmitting said first portion of said second frame" as recited in claim 13, but rather a CPE which is scheduled to transmit during "a **unit of time** for which access to the common transmission medium [is] assigned". Nor does *Raleigh* disclose transmitting portions of a "**unit of time**," much less queued portions of a "**unit of time**."

The addition of *Matsuoka* does not overcome this deficiency. *Matsuoka* does not disclose or suggest transmitting a portion of a "**unit of time**." Therefore, *Raleigh* in view of *Matsuoka* does not teach or suggest "transmitting said first portion of said first frame" as recited in claim 13.

**7. Summary**

For at least the reasons described above, *Raleigh* in view of *Matsuoka* fails to disclose, teach or suggest all of the features recited in claim 13. Therefore, Applicants respectfully submit that the rejection of claim 13 be withdrawn.

**N. Dependent Claims 14-16**

Because independent claim 13 is allowable over *Raleigh* in view of *Matsuoka*, Applicants respectfully submit that claims 14-16 are allowable for at least the reason that each depends

from an allowable claim. *In re Fine*, 837 F.2d 1071, 5 U.S.P.Q. 2d 1596, 1598 (Fed. Cir. 1988). Therefore, Applicants respectfully request that the rejection of claims 14-16 be withdrawn.

**O. Claim 15**

Applicants' claim 15 provides as follows (emphasis added):

The apparatus of claim 13 wherein ***said memory is also for queuing a second portion of said second frame, said second portion having a second length less than said second frame length***, said second length based on said second transmission rate.

Notwithstanding, and in addition to, the arguments discussed above, Applicants respectfully request that the rejection of claim 15 be withdrawn for at least the reason that *Raleigh* in view of *Matsuoka* fails to disclose, teach, or suggest at least the features recited and emphasized above in claim 15.

While the Office Action acknowledges "*Raleigh et al.* fails to specifically state queuing a portion of the frame" (Office Action, page 19), the Office Action appears to allege that "queuing a second portion of said second frame" corresponds to transmit priority "processor receives **packets** from the IP router that are to [sic] directed to the hub and queues them" (Office Action, page 15, emphasis added). However, *Raleigh* teaches that "data ... is in the form of IP **packets** which are forwarded to IP router 308" (col. 6, lines 12-14, emphasis added). This is in contradiction to the Office Action's position that *Raleigh* teaches "**a frame is ... a unit of time** for which access to the common transmission medium may be assigned to one or more CPEs" (Office Action, page 3, emphasis added). Applicants submit that **packets are not "units of time."** Thus, *Raleigh* does not disclose or suggest "queuing a second portion of said second frame."

The Office Action further states that "in an A frame 15 CPEs are scheduled to transmit each 2 Mbps, [sic] In frame B, CPEs 2 then 5 then 6 then 7... are scheduled to transmit" (Office Action, page 15). Thus, the Office Action appears to alternatively allege that "queuing a second portion of said second frame wherein the length of said second portion is less than said second

frame length" corresponds to "CPEs are scheduled to transmit." Applicants submit that a CPE (customer premise equipment) is not a frame. Applicants also submit that "scheduled to transmit" is different than "queuing a second portion of said second frame" as recited in claim 15. Furthermore, *Raleigh* does not disclose the transmit priority processor having "memory," much less queuing in "memory." Thus, *Raleigh* does not teach or suggest "said memory is also for queuing a second portion of said second frame" as recited in claim 15.

The addition of *Matsuoka* does not overcome these limitations. *Matsuoka* does not disclose queuing **portions of a "unit of time."** While the Office Action also alleges that "Matsuoka et al. teaches queuing said first portion of said first frame (see [0015], lines 1-6, buffer unit for fragmenting variable-length packets into fixed length packets, storing (queuing) the fixed-length **packets** (portions of variable-length packets))" (Office Action, page 15, emphasis added), this is in contradiction to the Office Action's position that **"a frame is ... a unit of time ..."** (Office Action, page 3). Applicants submit that **packets** are not **units of time**. Thus, *Matsuoka* does not disclose or suggest "queuing said first portion of said first frame" as alleged. Therefore, *Raleigh* in view of *Matsuoka* does not teach or suggest "said memory is also for queuing a second portion of said second frame, said second portion having a second length less than said second frame length" as recited in claim 15.

**P. Independent Claim 17**

Applicants' claim 17 provides as follows (emphasis added):

A method comprising:

**storing a first description of a first frame** wherein said first description comprises:

- (1) a first frame length;
- (2) a first transmission rate; and
- (3) a first class of service associated with said first frame;

**queuing a first portion of said first frame** in a first queue **wherein said first portion of said first frame comprises  $m$  octets**, wherein  $m$  is a positive integer with a value based on said first transmission rate;

**transmitting said first portion of said first frame** at said first transmission rate into a shared-communications channel;

**receiving a second portion of said first frame after said transmission of said first portion has started;**

**storing a second description of a second frame** after said storing of said first description wherein said second description comprises:

- (1) a second frame length;
- (2) a second transmission rate; and
- (2) a second class of service associated with said second frame;

**queuing a portion of said second frame wherein said portion of said second frame comprises  $n$  octets**, wherein  $n$  is a positive integer with a value based on said second transmission rate; and

**transmitting said portion of said second frame** at said second transmission rate into said shared-communications channel.

Applicants respectfully request that the rejection of independent claim 17 be withdrawn for at least the reason that *Raleigh* fails to disclose, teach, or suggest at least the features recited and emphasized above in claim 17.

**1. Storing a first description of a first frame**

The Office Action alleges "MAP instructions are forwarded to a radio link supervisor processor... reads on storing a description( instructions)" (Office Action, page 16). While *Raleigh* teaches:

Some of the extracted data includes the MAP which carries instructions assigning transmission center-frequencies, data rates and frame times. These instructions are forwarded to a radio link supervision processor 320. Radio link supervision processor 320 controls the data rate, transmission times and center-frequencies of operation for baseband physical layer processor 316 and radio converter 314.

(*Raleigh*, col. 6, lines 14-21), Applicants submit that forwarding instructions is different than “storing a first description of a first frame” as recited in claim 17. Thus, *Raleigh* does not disclose the radio link supervision processor “storing a first description.” The addition of *Matsuoka* does not overcome this deficiency. *Matsuoka* does not disclose or suggest “storing a first description of a first frame” as recited in claim 17. Thus, *Raleigh* in view of *Matsuoka* does not teach or suggest “storing a first description of a first frame” as recited in claim 17.

## 2. ***Queuing a first portion of said first frame ...***

Even though the Office Action acknowledges “*Raleigh et al.* fails to specifically state queuing a portion of the frame” (Office Action, page 19), the Office Action alleges that “queuing a first portion of said first frame in a first queue (see column 6, lines 28-30, processor receives packets from the IP router that are to [sic] directed to the hub and queues them, see also col. 6, lines 63-32, [sic] each 15 CPE are scheduled to transmit which reads on queued first than scheduled” (Office Action, page 17). However, *Raleigh* teaches:

IP packets to be transmitted are forwarded to MAC processor 318 from transmit priority processor 324. Transmit priority processor 324 receives packets from IP router 308 that are to be directed to hub 102 and queues them in order of priority.

(*Raleigh*, col. 6, lines 26-30, emphasis added). This is in contradiction to the Office Action's position that “**a frame is ... a unit of time ...**” (Office Action, page 3). Applicants submit that **packets are not units of time**. Moreover, one skilled in the art would understand that frames, as understood in *Raleigh*, are not measured in octets (bytes), but rather in **increments of time**. Thus, *Raleigh* does not teach or suggest “queuing a first portion of said first frame in a first queue wherein said first portion of said first frame comprises m octets” as recited in claim 17.

The Office Action also alleges that “*Matsuoka et al.* teaches queuing a portion of the frame (see [0015], lines 1-6, buffer unit for fragmenting variable-length packets into fixed length packets, storing (queuing) the fixed-length **packets** (portions of variable-length packets))” (Office Action, page 19, emphasis added). This is in contradiction to the Office Action's position

that "**a frame is ... a unit of time ...**" (Office Action, page 3). Applicants submit that **packets** are not **units of time**. *Matsuoka* does not teach or suggest queuing a portion of a "**unit of time**." Thus, *Raleigh* in view of *Matsuoka* does not teach or suggest "queuing a first portion of said first frame in a first queue wherein said first portion of said first frame comprises *m* octets" as recited in claim 17.

### 3. **Transmitting said first portion of said first frame**

The Office Action states that "a request access (RA) frame is where individual CPEs may request to the common transmission medium [*sic*] ... in an A frame 15 CPEs are scheduled to transmit each 2M Mbps [*sic*]" (Office Action, page 17). The Office Action appears to allege that transmission by one of the 15 CPEs corresponds to "transmitting said first portion of said first frame at said first transmission rate into a shared-communications channel." Specifically, *Raleigh* discloses "In an A frame 404, 15 CPEs 1-15 are scheduled to transmit, each transmitting ... at differing center-frequencies" (col. 6, lines 63-64). However, *Raleigh* teaches that "A frame is ... a **unit of time** for which access to the common transmission medium may be assigned to one or more CPEs" (col. 6, lines 41-44, emphasis added). Thus, *Raleigh* does not disclose or suggest "transmitting said first portion of said first frame" as recited in claim 17, but rather a CPE which is scheduled to transmit during "a **unit of time** for which access to the common transmission medium [*is*] assigned". Nor does *Raleigh* disclose transmitting portions of a "**unit of time**."

The addition of *Matsuoka* does not overcome this deficiency. *Matsuoka* does not disclose or suggest transmitting a portion of a "**unit of time**." Therefore, *Raleigh* in view of *Matsuoka* does not teach or suggest "transmitting said first portion of said first frame" as recited in claim 17.

### 4. **Receiving a second portion of said first frame ...**

The Office Action appears to allege that "receiving a second portion of said first frame after said transmission of said first portion has started" corresponds to "a request access (RA)



frame is where individual CPEs may request to the common transmission medium [*sic*] ... in an A frame 15 CPEs are scheduled to transmit each 2M Mbps, [*sic*] In frame B, CPEs 2 then 5 then 6 then 7... are scheduled to transmit" (Office Action, page 17). Specifically, *Raleigh* discloses that:

In an A frame 404, 15 CPEs 1-15 are scheduled to transmit... In a B frame 406, a different set of CPEs 2, 5, 6, 7, 9, 12, 14, 15, 17, 20, 21, 22, 24, 26, and 30 are scheduled to transmit.

(*Raleigh*, col. 6. lines 63-67). However, *Raleigh* teaches that "A frame is ... a **unit of time** for which access to the common transmission medium may be assigned to one or more CPEs" (col. 6, lines 41-44, emphasis added). Thus, *Raleigh* does not disclose or suggest "receiving a second portion of said first frame" as recited in claim 17, but rather a CPE which is scheduled to transmit during "a **unit of time** for which access to the common transmission medium [is] assigned". Applicants respectfully submit that "CPEs are scheduled to transmit" is different than "receiving a second portion of said first frame" as recited in claim 17.

Furthermore, while *Raleigh* discloses that "In an A frame 404, 15 CPEs 1-15 are scheduled to transmit... In a B frame 406, a different set of CPEs ... are scheduled to transmit" (col. 6. lines 63-67), *Raleigh* does not teach or suggest that CPEs are sequentially scheduled to transmit as alleged. Nor does *Raleigh* disclose sequentially transmitting during a frame. Rather, as discussed in section I.B.2 above, *Raleigh* teaches simultaneous transmission by CPEs at different center-frequencies during a frame. Even assuming, *arguendo*, that a portion of the frequency domain assigned to a CPE corresponds to a portion of a frame, *Raleigh* does not teach that portions of the frequency domain related to a frame are transmitted at different times. As illustrated in FIGS. 4A and 4B, portions of the frequency domain related to a frame extend over the entire frame time. *Raleigh* does not teach that the portion of the frequency domain has a **time length** less than said frame length. Nor does *Raleigh* disclose receiving portions of a "**unit of time**." Thus, *Raleigh* does not teach or suggest "receiving a second

portion of said first frame after said transmission of said first portion has started" as recited in claim 17.

The addition of *Matsuoka* does not overcome this deficiency. *Matsuoka* does not disclose or suggest receiving a portion of a "**unit of time**", much less "receiving a second portion of said first frame after said transmission of said first portion has started" as recited in claim 17. Therefore, *Raleigh* in view of *Matsuoka* does not teach or suggest "receiving a second portion of said first frame after said transmission of said first portion has started" as recited in claim 17.

#### **5. Storing a second description of a second frame**

The Office Action appears to allege that "storing a second description of a second frame" corresponds to "data extracted from the received MAC packets included MAP" (Office Action, page 18). In particular, the Office Action appears to allege that "a description" corresponds to "center-frequencies, data rates and frame times." However, *Raleigh* teaches that:

A MAC processor 318 operates to assemble and disassemble packets conforming to the operant MAC protocol. Much of the data extracted from the received MAC packets is in the form of IP packets which are forwarded to IP router 308. Some of the extracted data includes the MAP which carries instructions assigning transmission center-frequencies, data rates and frame times. These instructions are forwarded to a radio link supervision processor 320. Radio link supervision processor 320 controls the data rate, transmission times and center-frequencies of operation for baseband physical layer processor 316 and radio converter 314.

(*Raleigh*, col. 6, lines 10-21). *Raleigh* does not teach storing the "data extracted from the received MAC packets." Thus, *Raleigh* fails to disclose or suggest "storing a second description of a second frame" as recited in claim 17. The addition of *Matsuoka* does not overcome this deficiency. *Matsuoka* does not disclose or suggest "storing a second description of a second frame" as recited in claim 17. Thus, *Raleigh* in view of *Matsuoka* does not teach or suggest "storing a second description of a second frame" as recited in claim 17.

#### **6. Queuing a portion of said second frame ...**

The Office Action appears to allege that " "queuing a portion of said second frame" corresponds to "processor receives **packets** from the IP router that are to [sic] directed to the

hub and queues them" (Office Action, page 18, emphasis added). However, *Raleigh* teaches that "data ... is in the form of IP **packets** which are forwarded to IP router 308" (col. 6, lines 12-14, emphasis added). This is in contradiction to the Office Action's position that *Raleigh* teaches "**a frame is ... a unit of time** for which access to the common transmission medium may be assigned to one or more CPEs" (Office Action, page 3, emphasis added). Applicants submit that **packets** are not **units of time**. Moreover, one skilled in the art would understand that frames, as understood in *Raleigh*, are not measured in octets (bytes), but rather in **increments of time**. Thus, *Raleigh* does not disclose or suggest "queuing a portion of said second frame" as recited in claim 17.

The Office Action also alleges that "Matsuoka et al. teaches queuing a portion of the frame (see [0015], lines 1-6, buffer unit for fragmenting variable-length packets into fixed length packets, storing (queuing) the fixed-length **packets** (portions of variable-length packets))" (Office Action, page 19, emphasis added). This is in contradiction to the Office Action's position that "**a frame is ... a unit of time ...**" (Office Action, page 3). Applicants submit that **packets** are not **units of time**. *Matsuoka* does not teach or suggest queuing a portion of a "**unit of time**." Thus, *Raleigh* in view of *Matsuoka* does not teach or suggest "queuing a portion of said second frame wherein said portion of said second frame comprises n octets" as recited in claim 17.

#### **7. Transmitting said portion of said second frame**

The Office Action states that "a request access (RA) frame is where individual CPEs may request to the common transmission medium [sic] ... in an A frame 15 CPEs are scheduled to transmit each 2M Mbps [sic]" (Office Action, page 18). The Office Action appears to allege that transmission by one of the 15 CPEs corresponds to "transmitting said first portion of said first frame at said first transmission rate into a shared-communications channel." Specifically, *Raleigh* discloses "In an A frame 404, 15 CPEs 1-15 are scheduled to transmit, each transmitting ... at differing center-frequencies" (col. 6, lines 63-64). However, *Raleigh* teaches that "A frame

is ... a **unit of time** for which access to the common transmission medium may be assigned to one or more CPEs" (col. 6, lines 41-44, emphasis added). Thus, *Raleigh* does not disclose or suggest "transmitting said portion of said second frame" as recited in claim 17, but rather a CPE which is scheduled to transmit during "a **unit of time** for which access to the common transmission medium [is] assigned". Nor does *Raleigh* disclose transmitting portions of a "**unit of time**."

The addition of *Matsuoka* does not overcome this deficiency. *Matsuoka* does not disclose or suggest transmitting a portion of a "**unit of time**." Therefore, *Raleigh* in view of *Matsuoka* does not teach or suggest "transmitting said portion of said second frame at said second transmission rate into said shared-communications channel" as recited in claim 17.

#### 8. Summary

For at least the reasons described above, *Raleigh* in view of *Matsuoka* fails to disclose, teach or suggest all of the features recited in claim 17. Therefore, Applicants respectfully submit that the rejection of claim 17 be withdrawn.

#### Q. Dependent Claims 18-20

Because independent claim 17 is allowable over *Raleigh* in view of *Matsuoka*, Applicants respectfully submit that claims 18-20 are allowable for at least the reason that each depends from an allowable claim. *In re Fine*, 837 F.2d 1071, 5 U.S.P.Q. 2d 1596, 1598 (Fed. Cir. 1988). Therefore, Applicants respectfully request that the rejection of claims 18-20 be withdrawn.

#### R. Claim 19

Applicants' claim 19 provides as follows (emphasis added):

The method of claim 17 further comprising **queuing a second portion of said second frame, said second portion having a length less than said second frame length**, said length based on said second transmission rate.

Notwithstanding, and in addition to, the arguments discussed above, Applicants respectfully request that the rejection of claim 19 be withdrawn for at least the reason that *Raleigh* in view of

*Matsuoka* fails to disclose, teach, or suggest at least the features recited and emphasized above in claim 19.

Even though the Office Action acknowledges "*Raleigh et al.* fails to specifically state queuing a portion of the frame" (Office Action, page 19), the Office Action appears to allege that "CPE may transmit upstream at a given frame" (Office Action, page 20) corresponds to "queuing a second portion of said second frame, said second portion having a length less than said second frame length" as recited in claim 19. Specifically, *Raleigh* discloses "In an A frame 404, 15 CPEs 1-15 are scheduled to transmit, each transmitting ... at differing center-frequencies" (col. 6, lines 63-64). However, *Raleigh* teaches that "A frame is ... a **unit of time** for which access to the common transmission medium may be assigned to one or more CPEs" (col. 6, lines 41-44, emphasis added). Thus, *Raleigh* does not disclose or suggest "queuing a second portion of said second frame" as recited in claim 19, but rather a CPE which is scheduled to transmit during "a **unit of time** for which access to the common transmission medium [is] assigned". Nor does *Raleigh* disclose queuing portions of a "**unit of time**." Thus, *Raleigh* does not teach or suggest "queuing a second portion of said second frame, said second portion having a length less than said second frame length" as recited in claim 19.

The Office Action also alleges that "*Matsuoka et al.* teaches queuing said second portion of said second frame (see [0015], lines 1-6, buffer unit for fragmenting variable-length packets into fixed length packets, storing (queuing) the fixed-length **packets** (portions of variable-length packets))" (Office Action, page 20, emphasis added). This is in contradiction to the Office Action's position that "**a frame is ... a unit of time ...**" (Office Action, page 3). Applicants submit that **packets** are not **units of time**. *Matsuoka* does not teach or suggest queuing a portion of a "**unit of time**." Thus, *Raleigh* in view of *Matsuoka* does not teach or suggest "queuing a second portion of said second frame, said second portion having a length less than said second frame length" as recited in claim 19.

**S. Independent Claim 21**

Applicants' claim 21 provides as follows (emphasis added):

An apparatus comprising:

**means for storing a first description of a first frame** wherein said description comprises:

- (1) a frame length; and
- (2) a first transmission rate;

**means for receiving a first portion of said first frame, said first portion having a first length less than said frame length**, said first length based on said first transmission rate;

**means for queuing said first portion of said first frame;**

**means for transmitting said first portion of said first frame** at said first transmission rate into a shared-communications channel; and

**means for receiving a second portion of said first frame after said transmission of said first portion has started.**

Applicants respectfully request that the rejection of independent claim 21 be withdrawn for at least the reason that *Raleigh* in view of *Matsuoka* fails to disclose, teach, or suggest at least the features recited and emphasized above in claim 21.

**1. Common Rejection**

The Office Action has grouped independent claims 1 and 21 together in a common rejection (Office Action, pages 2-4). As stated in MPEP § 707.07(d) under IMPROPERLY EXPRESSED REJECTIONS, "A plurality of claims should never be grouped together in a common rejection, unless that rejection is equally applicable to all claims in the group." Claim 21 is written in means plus function format, so that the respective means plus function elements of claim 21 should be interpreted pursuant to 35 U.S.C. Section 112, sixth paragraph, which states that "such claim shall be construed to cover the corresponding structure, material, or acts described in the specification and equivalents thereof." Claim 1 is not written in means plus function format. Therefore, Applicants respectfully submit that claim 21 is not similar to claim 1.

**2. Means for storing a description of a first frame**

The Office Action alleges "Raleigh et al. discloses ... storing a description of a first frame" (Office Action, page 2). Specifically, the Office Action alleges that "MAP instructions are forwarded to a radio link supervisor processor, which reads on storing a description(

instructions), the processor has a copy of the instruction to process, frequencies data rates, and frame times" [sic] (Office Action, page 2). Applicants respectfully submit that "instructions assigning transmission center-frequencies, data rates and frame times" (col. 6, lines 15-16) are not "a description of a first frame" as recited in claim 21.

Furthermore, Applicants respectfully submit that forwarding instructions is not "storing a description" as recited in claim 21. Even though *Raleigh* teaches:

Much of the data extracted from the received MAC packets is in the form of IP packets which are forwarded to IP router 308. Some of the extracted data includes the MAP which carries instructions assigning transmission center-frequencies, data rates and frame times. These instructions are forwarded to a radio link supervision processor 320. Radio link supervision processor 320 controls the data rate, transmission times and center-frequencies of operation for baseband physical layer processor 316 and radio converter 314.

(*Raleigh*, col. 6, lines 12-21), *Raleigh* does not teach storing "instructions" as alleged. Thus, *Raleigh* does not teach or suggest "storing a first description of a first frame" as recited in claim 21.

The addition of *Matsuoka* does not overcome these deficiencies. While *Matsuoka* teaches that a "header extracting section reads the destination information, the flag indicating the start or end of the frame, and the flag indicating multicasting or unicasting, from the packet header of the supplied packets" (paragraph 43), *Matsuoka* does not teach or suggest that the information is stored. Thus, *Raleigh* in view of *Matsuoka* fails to disclose or suggest "means for storing a description of a first frame" as recited in claim 21.

### 3. *Means for receiving a first portion of said first frame ...*

The Office Action cites *Raleigh*'s teaching of "**a frame is here** is [sic] **understood to be a unit of time** for which access to the common transmission medium may be assigned to one or more CPEs" (Office Action, page 3, emphasis added). Thus, the Office Action appears to allege that "receiving a first portion of said first frame wherein the length of said first portion is less than said frame length" corresponds to receiving a first portion of "**a unit of time.**"

The Office Action further alleges "see figure 4a, Frame A is divided into 15 parts each part is less than the total frame length, frame A makes up the sum of all 15 portions" (Office Action, page 3). However, *Raleigh* teaches that:

a bandwidth management processor 210 allocates available upstream bandwidth among CPEs 104. ... One consideration in assigning center-frequency is channel quality available at different center-frequencies... The bandwidth management processor 210 forwards assignments of frequency, data rate, and transmission frame... These assignments of center-frequency, data rate, and transmission frame provide the CPEs the information regarding the time-frequency division of the upstream medium. This information is referred to as the MAP.

According to the present invention, the spectrum available for downstream communications is divisible in both the frequency and time domains. FIG. 4A shows a series of frames in the time domain. A frame is here understood to be a unit of time for which access to the common transmission medium may be assigned to one or more CPEs 104. ...

In the illustrated example, each CPE 104 may transmit upstream during a given frame... In an A frame 404, 15 CPEs 1-15 are scheduled to transmit, each transmitting at 2 Mbps at differing center-frequencies. ... In a C frame 408, the entire upstream spectrum is reserved for a single CPE 3 which transmits at 30 Mbps. ... Thus, many CPEs may simultaneously transmit as low data rate sources or one CPE may transmit at a high data rate. ... Assigning frames such as in FIG. 4A is done by bandwidth management processor 210.

(*Raleigh*, col. 5, lines 28-42, col. 6, line 36-44 and col. 6, line 58 through col. 7, line 13, emphasis added).

Thus, *Raleigh* teaches simultaneous transmission by CPEs at different center-frequencies during a frame. *Raleigh* does not disclose assigning different **time portions** of a frame to CPEs. Even assuming, *arguendo*, that a portion of the frequency domain assigned to a CPE corresponds to a portion of a frame, *Raleigh* does not teach that the portion of the frequency domain has a **time length** "less than said frame length." Nor does *Raleigh* disclose receiving portions of a **"unit of time."**

The addition of *Matsuoka* does not overcome this deficiency. *Matsuoka* does not teach or suggest receiving a portion of a **"unit of time."** Therefore, *Raleigh* in view of *Matsuoka* does not



teach or suggest "means for receiving a first portion of said first frame, said first portion having a first length less than said frame length" as recited in claim 21.

**4. Means for queuing said first portion of said first frame**

Even though the Office Action acknowledges "Raleigh et al. fails to specifically state queuing a portion of the frame" (Office Action, page 19), the Office Action alleges that "queuing said first portion of said first frame( see column 6, lines 28-30, processor receives packets from the IP router that are to [sic] directed to the hub and queues them, see also col. 6, lines 63-32, [sic] each 15 CPE are scheduled to transmit which reads on queued first than scheduled" (Office Action, page 3). However, *Raleigh* teaches:

IP packets to be transmitted are forwarded to MAC processor 318 from transmit priority processor 324. Transmit priority processor 324 receives packets from IP router 308 that are to be directed to hub 102 and queues them in order of priority.

(*Raleigh*, col. 6, lines 26-30, emphasis added). This is in contradiction to the Office Action's position that "**a frame is ... a unit of time ...**" (Office Action, page 3). Applicants submit that **packets** are not units of time.

In addition, while *Raleigh* teaches that "bandwidth management processor 210 forwards assignments of frequency, data rate, and transmission frame..." (col. 5, lines 35-36), *Raleigh* does not disclose or suggest transmission of portions of a frame. Rather, as discussed in section I.S.3 above, *Raleigh* teaches simultaneous transmission by CPEs at different center-frequencies during a frame. Thus, *Raleigh* does not disclose or suggest "queuing said first portion of said first frame" as recited in claim 21.

The Office Action also alleges that "Matsuoka et al. teaches queuing said first portion of said first frame (see [0015], lines 1-6, buffer unit for fragmenting variable-length packets into fixed length packets, storing (queuing) the fixed-length **packets** (portions of variable-length packets))" (Office Action, page 4, emphasis added). This is in contradiction to the Office Action's position that "**a frame is ... a unit of time ...**" (Office Action, page 3). Applicants

submit that **packets** are not **units of time**. *Matsuoka* does not teach or suggest queuing a portion of a "**unit of time**." Thus, *Matsuoka* does not disclose or suggest "queuing said first portion of said first frame" as alleged.

Therefore, *Raleigh* in view of *Matsuoka* does not teach or suggest "means for queuing said first portion of said first frame" as recited in claim 21.

**5. Means for transmitting said first portion of said first frame**

The Office Action states that "a request access (RA) frame is where individual CPEs may request to the common transmission medium [sic] ... in an A frame 15 CPEs are scheduled to transmit each 2M Mbps [sic]" (Office Action, page 3). The Office Action appears to allege that transmission by one of the 15 CPEs corresponds to "transmitting said first portion of said first frame at said first transmission rate into a shared-communications channel." Specifically, *Raleigh* discloses "In an A frame 404, 15 CPEs 1-15 are scheduled to transmit, each transmitting ... at differing center-frequencies" (col. 6, lines 63-64). However, *Raleigh* teaches that "A frame is ... a **unit of time** for which access to the common transmission medium may be assigned to one or more CPEs" (col. 6, lines 41-44, emphasis added). Thus, *Raleigh* does not disclose or suggest "transmitting said first portion of said first frame" as recited in claim 21, but rather a CPE which is scheduled to transmit during "a **unit of time** for which access to the common transmission medium [is] assigned". Nor does *Raleigh* teach or suggest assigning different **time portions** of a frame to CPEs.

Even assuming, *arguendo*, that a portion of the frequency domain assigned to a CPE corresponds to a portion of a frame, *Raleigh* does not teach that the portion of the frequency domain has a **time length** "less than said frame length." Nor does *Raleigh* disclose transmitting portions of a "**unit of time**." As is well established in the law, the Examiner must instead consider the claims as a whole. *Hartness International, Inc. v. Simplicatic Engineering Co.*, 819 F.2d 1100, 2 USPQ2d 1826 (Fed. Cir. 1987) (In determining obviousness, "the inquiry is not whether each

element existed in the prior art, but whether the prior art made obvious the invention as a whole for which patentability is claimed").

The addition of *Matsuoka* does not overcome this deficiency. *Matsuoka* does not disclose or suggest transmitting a portion of a "**unit of time**." Therefore, *Raleigh* in view of *Matsuoka* does not teach or suggest "means for transmitting said first portion of said first frame" as recited in claim 21.

**6. Means for receiving a second portion of said first frame ...**

The Office Action appears to allege that "receiving a second portion (see figure 4a, section CPE X(X represents any one of 1-32) of said first frame after said transmission of said first portion has started" corresponds to "a request access (RA) frame is where individual CPEs may request to the common transmission medium [sic] ... in an A frame 15 CPEs are scheduled to transmit each 2M Mbps, [sic] In frame B, CPEs 2 then 5 then 6 then 7... are scheduled to transmit" (Office Action, page 3). Specifically, *Raleigh* discloses that:

In an A frame 404, 15 CPEs 1-15 are scheduled to transmit... In a B frame 406, a different set of CPEs 2, 5, 6, 7, 9, 12, 14, 15, 17, 20, 21, 22, 24, 26, and 30 are scheduled to transmit.

(*Raleigh*, col. 6, lines 63-67). However, *Raleigh* teaches that "A frame is ... a **unit of time** for which access to the common transmission medium may be assigned to one or more CPEs" (col. 6, lines 41-44, emphasis added). Thus, *Raleigh* does not disclose or suggest "receiving a second portion of said first frame" as recited in claim 21, but rather a CPE which is scheduled to transmit during "a **unit of time** for which access to the common transmission medium [is] assigned". Applicants respectfully submit that "CPEs are scheduled to transmit" is different than "receiving a second portion of said first frame" as recited in claim 21.

Furthermore, while *Raleigh* discloses that "In an A frame 404, 15 CPEs 1-15 are scheduled to transmit... In a B frame 406, a different set of CPEs ... are scheduled to transmit" (col. 6, lines 63-67), *Raleigh* does not teach or suggest that CPEs are sequentially scheduled to transmit as alleged. Nor does *Raleigh* disclose sequentially transmitting during a frame.

Rather, as discussed in section I.S.3 above, *Raleigh* teaches simultaneous transmission by CPEs at different center-frequencies during a frame. Even assuming, *arguendo*, that a portion of the frequency domain assigned to a CPE corresponds to a portion of a frame, *Raleigh* does not teach that portions of the frequency domain related to a frame are transmitted at different times. As illustrated in FIGS. 4A and 4B, portions of the frequency domain related to a frame extend over the entire frame time. *Raleigh* does not teach that the portion of the frequency domain has a **time length** less than said frame length. Nor does *Raleigh* disclose receiving portions of a "**unit of time**." Thus, *Raleigh* does not teach or suggest "receiving a second portion of said first frame after said transmission of said first portion has started" as recited in claim 21.

The addition of *Matsuoka* does not overcome this deficiency. *Matsuoka* does not disclose or suggest receiving a portion of a "**unit of time**", much less "receiving a second portion of said first frame after said transmission of said first portion has started" as recited in claim 21. Therefore, *Raleigh* in view of *Matsuoka* does not teach or suggest "means for receiving a second portion of said first frame after said transmission of said first portion has started" as recited in claim 21.

## **7. Summary**

For at least the reasons described above, *Raleigh* in view of *Matsuoka* fails to disclose, teach or suggest all of the features recited in claim 21. Therefore, Applicants respectfully submit that the rejection of claim 21 be withdrawn.

## **T. Dependent Claims 22-29**

Because independent claim 21 is allowable over *Raleigh* in view of *Matsuoka*, Applicants respectfully submit that claims 22-29 are allowable for at least the reason that each depends from an allowable claim. *In re Fine*, 837 F.2d 1071, 5 U.S.P.Q. 2d 1596, 1598 (Fed. Cir. 1988). Therefore, Applicants respectfully request that the rejection of claims 22-29 be withdrawn.

**U. Claim 22**

Applicants' claim 22 provides as follows (emphasis added):

The apparatus of claim 21 wherein ***said first description further comprises*** a second transmission rate and ***at least one form of modulation***.

Notwithstanding, and in addition to, the arguments discussed above, Applicants respectfully request that the rejection of claim 22 be withdrawn for at least the reason that *Raleigh* in view of *Matsuoka* fails to disclose, teach, or suggest at least the features recited and emphasized above in claim 22.

As discussed in section I.S.2 above, the Office Action appears to allege that "a description" corresponds to "center-frequencies, data rates and frame times." In addition, the Office Action appears to allege that "said description further comprises ... at least one form of modulation" corresponds to "any known MAC scheme may be used to control access to the medium in this frame such as CSMA, CSMA/CD etc. When RA frame includes an OFMD burst" (Office Action, page 4). However, *Raleigh* teaches:

The bandwidth management processor 210 forwards assignments of frequency, data rate, and transmission frame to MAC processor 206 for inclusion in MAC packets to be transmitted downstream. These assignments of center-frequency, data rate, and transmission frame provide the CPEs the information regarding the time-frequency division of the upstream medium. This information is referred to as the MAP.

(*Raleigh*, col. 5, lines 34-42). *Raleigh* does not teach assigning "forms of modulation" to frames or inclusion of "forms of modulation" in MAC packets. Rather, *Raleigh* discloses:

The present invention does not assume a particular modulation system. Representative modulation systems include QAM and OFDM. ... Baseband physical layer processor 202 includes hardware for implementing error correction coding, and any particular modulation scheme employed such as OFDM or QAM.

(*Raleigh*, col. 4, line 58 though col. 5, line 2). Thus, *Raleigh* fails to disclose or suggest "said description further comprises ... at least one form of modulation" as recited in claim 22.

The addition of *Matsuoka* does not overcome this deficiency. *Matsuoka* does not disclose or suggest modulation. Therefore, Applicants respectfully submit that *Raleigh* in view of *Matsuoka* fails to disclose, teach or suggest all of the features recited in claim 22 and respectfully request that the rejection of claim 22 be withdrawn.

#### V. Claim 23

Applicants' claim 23 provides as follows (emphasis added):

The apparatus of claim 21 further comprising ***means for queuing said second portion of said first frame, said second portion having a second length less than said frame length***, said second length based on said first transmission rate.

Notwithstanding, and in addition to, the arguments discussed above, Applicants respectfully request that the rejection of claim 23 be withdrawn for at least the reason that *Raleigh* in view of *Matsuoka* fails to disclose, teach, or suggest at least the features recited and emphasized above in claim 23.

As an initial matter, the Office Action has grouped dependent claims 4 and 23 together in a common rejection (Office Action, page 5). Claim 23 is written in means plus function format, so that the respective means plus function elements of claim 23 should be interpreted pursuant to 35 U.S.C. Section 112, sixth paragraph. Claim 4 is not written in means plus function format. Therefore, Applicants respectfully submit that claim 23 is not similar to claim 4.

In addition, even though the Office Action acknowledges "Raleigh et al. fails to specifically state queuing a portion of the frame" (Office Action, page 19), the Office Action appears to allege that "further comprising queuing said second portion of said first frame wherein the length of said second portion is less than said frame length, and is based on said first transmission rate and the time required to receive said second portion" corresponds to "processor receives packets from the IP router that are to [sic] directed to the hub and queues them, ... a request access ( RA) frame is where individual CPEs may request to the common transmission medium [sic] ... in an A frame 15 CPEs are scheduled to transmit each 2M Mbps,

[sic] In frame B, CPEs 2 then 5 then 6 then 7... are scheduled to transmit” (Office Action, page

5). However, *Raleigh* teaches:

IP packets to be transmitted are forwarded to MAC processor 318 from transmit priority processor 324. Transmit priority processor 324 receives packets from IP router 308 that are to be directed to hub 102 and queues them in order of priority.

(*Raleigh*, col. 6, lines 26-30, emphasis added). This is in contradiction to the Office Action’s position that “**a frame is ... a unit of time ...**” (Office Action, page 3). Applicants submit that **packets** are not units of time. Thus, *Raleigh* does not disclose or suggest “queuing said second portion of said first frame” as recited in claim 23.

Furthermore, *Raleigh* specifically discloses that:

In an A frame 404, 15 CPEs 1-15 are scheduled to transmit... In a B frame 406, a different set of CPEs 2, 5, 6, 7, 9, 12, 14, 15, 17, 20, 21, 22, 24, 26, and 30 are scheduled to transmit.

(*Raleigh*, col. 6, lines 63-67). However, *Raleigh* teaches that “A frame is ... a **unit of time** for which access to the common transmission medium may be assigned to one or more CPEs” (col. 6, lines 41-44, emphasis added). Thus, *Raleigh* does not disclose or suggest “queuing said second portion of said first frame” as recited in claim 23, but rather a CPE which is scheduled to transmit during “a **unit of time** for which access to the common transmission medium [is] assigned”. Applicants respectfully submit that “CPEs are scheduled to transmit” is different than “queuing said second portion of said first frame” as recited in claim 23.

The Office Action also alleges that “Matsuoka et al. teaches queuing said first portion of said first frame (see [0015], lines 1-6, buffer unit for fragmenting variable-length packets into fixed length packets, storing (queuing) the fixed-length **packets** (portions of variable-length packets))” (Office Action, page 5, emphasis added). This is in contradiction to the Office Action’s position that “**a frame is ... a unit of time ...**” (Office Action, page 3). Applicants submit that **packets** are not units of time. *Matsuoka* does not teach or suggest queuing a

portion of a "**unit of time**." Thus, *Matsuoka* does not disclose or suggest "queuing said second portion of said first frame" as alleged.

Therefore, *Raleigh* in view of *Matsuoka* does not teach or suggest "means for queuing said second portion of said first frame, said second portion having a second length less than said frame length" as recited in claim 23. Thus, Applicants respectfully submit that *Raleigh* in view of *Matsuoka* fails to disclose, teach or suggest all of the features recited in claim 23 and respectfully request that the rejection of claim 23 be withdrawn.

**W. Claim 24**

Applicants' claim 24 provides as follows (emphasis added):

The apparatus of claim 23 further comprising ***means for transmitting said second portion of said first frame*** at said first transmission rate into said shared-communications channel.

Notwithstanding, and in addition to, the arguments discussed above, Applicants respectfully request that the rejection of claim 24 be withdrawn for at least the reason that *Raleigh* fails to disclose, teach, or suggest at least the features recited and emphasized above in claim 24.

The Office Action states that "a request access (RA) frame is where individual CPEs may request to the common transmission medium [*sic*] ... in an A frame 15 CPEs are scheduled to transmit each 2M Mbps [*sic*]" (Office Action, page 21). The Office Action appears to allege that transmission by one of the 15 CPEs corresponds to "transmitting said second portion of said first frame at said first transmission rate into said shared-communications channel." Specifically, *Raleigh* discloses "In an A frame 404, 15 CPEs 1-15 are scheduled to transmit, each transmitting ... at differing center-frequencies" (col. 6, lines 63-64). However, *Raleigh* teaches that "A frame is ... a **unit of time** for which access to the common transmission medium may be assigned to one or more CPEs" (col. 6, lines 41-44, emphasis added). Thus, *Raleigh* does not disclose or suggest "transmitting said second portion of said first frame" as recited in claim 24, but rather a CPE which is scheduled to transmit during "a **unit of time** for



which access to the common transmission medium [is] assigned". Nor does *Raleigh* disclose transmitting portions of a "**unit of time**."

The addition of *Matsuoka* does not overcome this deficiency. *Matsuoka* does not disclose or suggest transmitting a portion of a "**unit of time**." Therefore, *Raleigh* in view of *Matsuoka* does not teach or suggest "means for transmitting said second portion of said first frame" as recited in claim 24. Therefore, Applicants respectfully submit that the rejection of claim 24 be withdrawn.

**X. Claim 25**

Applicants' claim 25 provides as follows (emphasis added):

The apparatus of claim 21 further comprising:

***means for storing a second description of a second frame*** wherein said description comprises:

- (1) a second frame length; and
- (2) a second transmission rate; and

***means for receiving a first portion of said second frame, said first portion having a second length less than said second frame length***, said second length based on said second transmission rate.

Notwithstanding, and in addition to, the arguments discussed above, Applicants respectfully request that the rejection of claim 25 be withdrawn for at least the reason that *Raleigh* in view of *Matsuoka* fails to disclose, teach, or suggest at least the features recited and emphasized above in claim 25.

As an initial matter, the Office Action has grouped independent claim 17 and dependent claim 25 together in a common rejection (Office Action, pages 16-19). Claim 25 is written in means plus function format, so that the respective means plus function elements of claim 25 should be interpreted pursuant to 35 U.S.C. Section 112, sixth paragraph. Claim 17 is not written in means plus function format. Therefore, Applicants respectfully submit that claim 25 is not similar to claim 17.

**1. Means for storing a second description of a second frame**

The Office Action appears to allege that "storing a second description of a second frame" corresponds to "data extracted from the received MAC packets included MAP" (Office Action, page 18). In particular, the Office Action appears to allege that "a description" corresponds to "center-frequencies, data rates and frame times." However, *Raleigh* teaches that:

A MAC processor 318 operates to assemble and disassemble packets conforming to the operant MAC protocol. Much of the data extracted from the received MAC packets is in the form of IP packets which are forwarded to IP router 308. Some of the extracted data includes the MAP which carries instructions assigning transmission center-frequencies, data rates and frame times. These instructions are forwarded to a radio link supervision processor 320. Radio link supervision processor 320 controls the data rate, transmission times and center-frequencies of operation for baseband physical layer processor 316 and radio converter 314.

(*Raleigh*, col. 6, lines 10-21). *Raleigh* does not teach storing the "data extracted from the received MAC packets." Thus, *Raleigh* fails to disclose or suggest "storing a second description of a second frame" as recited in claim 25. The addition of *Matsuoka* does not overcome this deficiency. *Matsuoka* does not disclose or suggest "storing a second description of a second frame" as recited in claim 25. Thus, *Raleigh* in view of *Matsuoka* does not teach or suggest "means for storing a second description of a second frame" as recited in claim 25.

**2. Means for receiving a first portion of said second frame ...**

The Office Action fails to allege that *Raleigh* or *Matsuoka*, either individually or in combination, teach, disclose, or suggest "means for receiving a first portion of said second frame, said first portion having a second length less than said second frame length" as recited in claim 25.

**3. Summary**

For at least the reasons described above, *Raleigh* in view of *Matsuoka* fails to disclose, teach or suggest all of the features recited in claim 25. Therefore, Applicants respectfully submit that the rejection of claim 25 be withdrawn.

Y. Claim 26

Applicants' claim 26 provides as follows (emphasis added):

The apparatus of claim 25 further comprising ***means for queuing said first portion of said second frame.***

Notwithstanding, and in addition to, the arguments discussed above, Applicants respectfully request that the rejection of claim 26 be withdrawn for at least the reason that *Raleigh* in view of *Matsuoka* fails to disclose, teach, or suggest at least the features recited and emphasized above in claim 26.

As an initial matter, the Office Action has grouped independent claim 17 and dependent claim 26 together in a common rejection (Office Action, pages 16-19). Claim 26 is written in means plus function format, so that the respective means plus function elements of claim 26 should be interpreted pursuant to 35 U.S.C. Section 112, sixth paragraph. Claim 17 is not written in means plus function format. Therefore, Applicants respectfully submit that claim 26 is not similar to claim 17.

In addition, the Office Action appears to allege that "queuing said first portion of said second frame" corresponds to "processor receives ***packets*** from the IP router that are to [sic] directed to the hub and queues them" (Office Action, page 18, emphasis added). However, *Raleigh* teaches that "data ... is in the form of IP ***packets*** which are forwarded to IP router 308" (col. 6, lines 12-14, emphasis added). This is in contradiction to the Office Action's position that *Raleigh* teaches "***a frame is ... a unit of time*** for which access to the common transmission medium may be assigned to one or more CPEs" (Office Action, page 3, emphasis added). Applicants submit that ***packets*** are not ***units of time***. Thus, *Raleigh* does not disclose or suggest "queuing a portion of said second frame" as recited in claim 26.

The Office Action also alleges that "Matsuoka et al. teaches queuing a portion of the frame (see [0015], lines 1-6, buffer unit for fragmenting variable-length packets into fixed length packets, storing (queuing) the fixed-length ***packets*** (portions of variable-length packets))"

(Office Action, page 19, emphasis added). This is in contradiction to the Office Action's position that "**a frame is ... a unit of time ...**" (Office Action, page 3). Applicants submit that **packets** are not **units of time**. *Matsuoka* does not teach or suggest queuing a portion of a "**unit of time**." Thus, *Raleigh* in view of *Matsuoka* does not teach or suggest "means for queuing said first portion of said second frame" as recited in claim 26. Therefore, Applicants respectfully submit that the rejection of claim 26 be withdrawn.

**Z. Claim 27**

Applicants' claim 27 provides as follows (emphasis added):

The apparatus of claim 26 further comprising **means for transmitting said first portion of said second frame** at said second transmission rate into said shared-communications channel.

Notwithstanding, and in addition to, the arguments discussed above, Applicants respectfully request that the rejection of claim 27 be withdrawn for at least the reason that *Raleigh* in view of *Matsuoka* fails to disclose, teach, or suggest at least the features recited and emphasized above in claim 27.

As an initial matter, the Office Action has grouped independent claim 17 and dependent claim 27 together in a common rejection (Office Action, pages 16-19). Claim 27 is written in means plus function format, so that the respective means plus function elements of claim 27 should be interpreted pursuant to 35 U.S.C. Section 112, sixth paragraph. Claim 17 is not written in means plus function format. Therefore, Applicants respectfully submit that claim 27 is not similar to claim 17.

In addition, the Office Action states that "a request access (RA) frame is where individual CPEs may request to the common transmission medium [*sic*] ... in an A frame 15 CPEs are scheduled to transmit each 2M Mbps [*sic*]" (Office Action, page 18). The Office Action appears to allege that transmission by one of the 15 CPEs corresponds to "transmitting said first portion of said second frame at said second transmission rate into said shared-communications

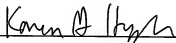
channel." Specifically, *Raleigh* discloses "In an A frame 404,15 CPEs 1-15 are scheduled to transmit, each transmitting ... at differing center-frequencies" (col. 6, lines 63-64). However, *Raleigh* teaches that "A frame is ... a **unit of time** for which access to the common transmission medium may be assigned to one or more CPEs" (col. 6, lines 41-44, emphasis added). Thus, *Raleigh* does not disclose or suggest "transmitting said first portion of said second frame" as recited in claim 27, but rather a CPE which is scheduled to transmit during "a **unit of time** for which access to the common transmission medium [is] assigned". Nor does *Raleigh* disclose transmitting portions of a "**unit of time**."

The addition of *Matsuoka* does not overcome this deficiency. *Matsuoka* does not disclose or suggest transmitting a portion of a "**unit of time**." Therefore, *Raleigh* in view of *Matsuoka* does not teach or suggest "means for transmitting said first portion of said second frame" as recited in claim 27. Therefore, Applicants respectfully submit that the rejection of claim 27 be withdrawn.

**CONCLUSION**

Applicants respectfully request that all outstanding objections and rejections be withdrawn and that this application and presently pending claims 1-29 be allowed to issue. Any statements in the Office Action that are not explicitly addressed herein are not intended to be admitted. In addition, any and all findings of inherency are traversed as not having been shown to be necessarily present. Furthermore, any and all findings of well-known art and official notice, or statements interpreted similarly, should not be considered well known since the Office Action does not include specific factual findings predicated on sound technical and scientific reasoning to support such conclusions. If the Examiner has any questions or comments regarding Applicants' response, the Examiner is encouraged to telephone Applicants' undersigned counsel.

Respectfully submitted,

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